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Bulletin of the

British Ornithologists' Club

Edited by
Dr J. F. MONK

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Volume 109 No. 1

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FORTHCOMING MEETINGS

Wednesday, 5 April 1989 at 6.15 p.m. for 7 p.m. in the Senior Common Room, Sherfield Building, Imperial College, S.W.7, **Dr Algirdas Knystautas** will speak on **"Birds of the Soviet Union".** Those wishing to attend should send their acceptance with a cheque for £5 per person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on Wednesday, 22 March 1989, if possible*.

Dr Knystautas from Vilnius, Lithuania, USSR is a leading Soviet ornithologist, whose work has covered all parts of the USSR, and has a wide knowledge of the Soviet avifauna, including endemic species. He will illustrate his address with slides and his photography is of a very high standard. His last book published in London came out in 1987 and his next, with the same title as his address to the Club on this occasion, is to be published a year hence.

Tuesday, 9 May 1989 at 6.15 p.m. for 7 p.m. at the same place, **Dr R. A. F. Cox** will speak on **"North Sea Birds".** Those wishing to attend should send their acceptance with a cheque for £5 per person to reach the Hon. Secretary (address above) by first post on Tuesday, 25 April 1989, if possible*.

Dr Cox has been Vice-Chairman and Secretary of the North Sea Bird Club and has an extensive knowledge of the vast increase in information on birds in the North Sea resulting from the exploration and development of the oil resources there

Tuesday, 13 June 1989 at 6.15 p.m. for 7 p.m. at the same place, **the Revd. T. W. Gladwin** will speak on **"Birds around Lake Erie".** Those wishing to attend should send their acceptance with a cheque for £5 per person to reach the Hon. Secretary (address above) by first post on Tuesday, 30 May, if possible*.

Mr Gladwin will concentrate particularly on the breeding birds of some of the habitats special to the area and on the migration patterns, which have been much studied in that area of Canada.

Tuesday, 25 July 1989 at the same place, **Dr Margaret Carswell** will speak on **"The Uganda Atlas of Birds".**

Dr Carswell lived and worked in Uganda 1968–1987 and is senior author of the Uganda Atlas.

Tuesday, 26 September 1989 at the same place, in conjunction with the West African Ornithological Society, **Mr Roger Beecroft** will speak on **"Birds in the Sahara".**

Tuesday, 28 November 1989 at the same place, **Dr P. J. Jones** will speak on **"The migration strategies of Palaearctic migrants in West Africa in relation to Sahelian drought".**

*It will be possible to take acceptances up to the weekend before a Meeting, but Members are asked to accept by 14 days before a Meeting, if they possibly can.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 109 No. 1 Published: 30 March 1989

REPORT OF THE COMMITTEE FOR 1988

Meetings. In 1988, 9 meetings were held at which we were very pleased to welcome as speakers not only eminent ornithologists from this country but also Dr David Nettleship, Dr Clive Elliott and Dr Gérard Morel, who were on brief visits to England. More meetings were held than in any year since 1964. Additions to those customarily held in alternate months through the year were arranged partly to take advantage of very short visits to this country by distinguished scientists from overseas for them to speak and partly because of the wish of members for more meetings, as evidenced by increased attendances. Meetings were held in the Senior Common Room, Sherfield Building, Imperial College, South Kensington, except for the January meeting, which opened with the showing of 2 films lasting an hour by Dr Nettleship in the Lecture Theatre of the British Museum (Natural History), Cromwell Road, followed by a hot supper in the Senior Common Room, Imperial College and an address afterwards. The December meeting was arranged in collaboration with the Ornithological Society of the Middle East, who kindly made the arrangements for the speaker and for the projection of the 16 mm sound film. The total of attendances in the year of Club members and their guests was 387, which (excluding meetings in earlier years held jointly with the British Ornithologists' Union, which have now been replaced by meetings held by the Union in its sole name) is the largest number for over 50 years.

Club business. The Committee met 6 times in 1988. Representations were made that the decision to cease research work in the Sub-Department of Ornithology of the British Museum (Natural History) should be reversed, but no favourable response was forthcoming. The Club was elected to membership of the Association of Learned and Professional Society Publishers. It was decided to complete the editorial set of bound volumes of the *Bulletin* by having 50 of the most recent years' issues bound. New Rules were approved at the Annual General Meeting on 10 May 1988 and the Objects and Rules will be printed with the Index to Vol. 108 of the *Bulletin*. Up to Vol. 68 (1947–1948), the Objects and Rules, the lists of Officers, List of Members, List of Authors and Index to Scientific Names were printed together, every year. Since then, the Objects and Rules have been printed from time to time and the List of Members only in Vols. 69, 74 and 79 (1959). The British Ornithologists' Union agreed to mark the names of Club members in their Lists of Members of 1979 and 1982 and it has now been felt that an up-to-date list of Club members would be of value.

Deaths. It is with very great regret that the Committee reports the deaths in the past year of W. H. Phelps, Jnr. member 1953–1988, L. J. Turtle, member 1925–1988 and T. W. Twiggs, member 1972–1988. William Phelps, the distinguished Neotropical ornithologist, was joint author of 2 major works on the birds of Venezuela and, with his late father, established a superb bird museum and library. Mr Turtle continued an active interest in birds throughout his long life. News was received also of the death in 1987 of F. Haverschmidt, member 1965–1987, well-known for his work on birds in the Caribbean and South America and author of a number of papers in the *Bulletin*.

Membership. In 1988 there were 40 new members, and 4 members, who were in arrears at the end of 1987, paid up to date. There were 10 resignations for 1988 and 23 failed to pay their subscriptions in the year. Paid-up membership at the year end was 578 (352 with U.K. addresses, 226 with overseas addresses), an increase of 8 in the year and a record number. 23 Members were struck off, not having paid their subscriptions for 1987 nor 1988.

Bulletin sales. Non-member subscriptions to the *Bulletin* were 2 fewer than a year before at 147 (19 U.K., 128 overseas). We are most grateful to Mrs F. E. Warr for the work she has done in cataloguing the stock of *Bulletin* back numbers and for dealing with back number sales, in addition to which she has assisted with the separates for authors of papers in the *Bulletin*. The reproduction of scarce back numbers has continued.

Finance. The accounts for 1988 are not yet available. They will be tabled at the Annual General Meeting and published afterwards in the *Bulletin*. Members wanting copies before that meeting should notify the Honorary Treasurer.

The Bulletin this year has enlarged to over 200 pages thanks to the continuing high standard of submissions and to the continuing strong membership and buoyant finances. Out of 51 papers published, 22 (43%) were on Systematics and Taxonomy, from the Indian and Atlantic Oceans, Italy, many countries of sub-Saharan Africa, the Gulf of Guinea, Madagascar, Somalia, Israel, Siberia, China, the Philippines, Hawaii and Brazil. It is therefore an unhappy decision of the Trustees of the British Museum (Natural History) to decree the abandonment of any research by its staff in the Sub-Department of Ornithology at Tring. The new Director, Dr Neil Chalmers, supports the decision and is on record as saying (*The Guardian,* 8 November 1988) ". . . given its finite resources the Museum thinks that the most exciting research developments that its own staff should be getting involved in are not, at the moment, in ornithological taxonomy. They are in other areas" and mentions DNA as a whole new dimension to their work. "It will give a further handle on the relationships between the groups in our collection"—but apparently not in ornithology. Why?

Systematics and Taxonomy in birds are highly actively pursued throughout the world, as this volume demonstrates, and it can only be deplored that Ornithology has once again, after perhaps some 130 years or more, been made the Cinderella of the Natural Sciences, having so often in the past given the lead in new approaches to these important subjects.

The move to new Printers has been smooth and the Club is grateful to The Dorset Press for producing what was for them a new journal so co-operatively and in its old guise.

ANNUAL GENERAL MEETING

The 1989 Annual General Meeting of the British Ornithologists' Club will be held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 at 6 p.m. on Tuesday, 9 May 1989.

AGENDA

1. Minutes of the 1988 Annual General Meeting (see *Bull. Brit. Orn. Cl.* 108: 152, 154) and of the Special General Meeting held on 7 February 1989
2. Report of the Committee and Accounts for 1988
3. *The Bulletin*
4. The election of Officers. The Committee proposes that:—
    - (a) Mr R. E. F. Peal be elected Chairman (*vice* the Revd. G. K. McCulloch, who is ineligible for re-election)
    - (b) Mr J. H. Elgood be elected Vice-Chairman (*vice* Mr D. Griffin, who is ineligible for re-election)
    - (c) Mrs A. M. Moore be elected Honorary Secretary (*vice* Mr R. E. F. Peal)
    - (d) Mrs D. M. Bradley be re-elected Honorary Treasurer
    - (e) Mr D. Griffin be elected a Member of the Committee (*vice* Mr J. H. Elgood)
    - (f) Mr S. J. Farnsworth be elected a Member of the Committee in the event of Mrs A. M. Moore being elected Honorary Secretary
5. Any other business of which notice shall have been given in accordance with Rule (12).

By Order of the Committee

The seven hundred and eighty-third Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 8 November 1988 at 7 pm. The attendance was 34 Members and 25 guests.

Members present were: Revd. G. K. McCulloch (*Chairman*), M. A. Adcock, Dr J. S. Ash, Miss H. Baker, P. J. Belman, J. H. R. Boswall, Mrs D. M. Bradley, D. R. Calder, S. J. W. Coles, Dr N. J. Collar, I. D. Collins, P. J. Conder, Dr H. Q. P. Crick, J. H. Elgood, J. H. Fanshawe, S. J. Farnsworth, A. Gibbs, H. S. Gibbons, Revd. J. M. Gladwin, B. Gray, D. Griffin, Dr M. G. Kelsey, R. H. Kettle, Dr F. R. Lambert, Dr J. F. Monk, Mrs A. Moore, R. G. Morgan, Mrs M. N. Muller, R. E. F. Peal, R. E. Sharland, N. H. F. Stone, A. R. Swash, A. R. Tanner, and Dr D. H. Thomas.

Guests present were: Mrs B. E. Adcock, Dr R. J. Baker, Mrs J. Bull, P. Bull, D. Couzens, C. Gibbons, Mrs M. C. Gibbons, Mrs J. M. Gladwin, A. Gretton, Mrs S. Griffin, N. K. Krabbe, A. J. Holcombe, Mrs B. J. Holcombe, Lt-Cdr W. Houghton, Mrs I. McCulloch, P. J. Moore, Dr Gérard J. Morel, Dr M.-Yvonne Morel, Mrs E. Peal, I. Proud, R. Ranft, Mrs G. Swash, I. Thomas, Shunji Usui and A. Valle.

Dr Gérard J. Morel spoke on "Paradoxical Sahel: rich wetlands surrounded with arid bush steppe". His address follows.

Paradoxical Sahel: rich wetlands surrounded with arid bush steppe*

by Gérard J. Morel

The Sahel can be described as a belt several hundred km wide, lying south of the Sahara, its southern margin abutting against the sudanian broad-leaved, dry savannah. It thus occupies the latitudes between 15° and 17°N, and is therefore within the Tropics. From the naturalist's point of view, however, the Sahel is more aptly defined by the rainfall, on which plants and animals so closely depend. The average Sahelian rainfall is 300 mm a year, with large variations: from 100 mm (or even less) to 600 mm. It is worth pointing out that a rainfall of 300 mm is about half that of the Normandy coast—and, I suppose, the British coast opposite as well, both of which are reputedly quite humid; but the Sahelian rains only occur mainly during 2 months, August and September, often in violent and inadequate downpours. Consequently, the Sahelian creatures, Man included, have to put up with insufficient rain and, above all, with 9 or 10 rainless months, conditions which are made even worse by evaporation which takes toll of 1 cm of water a day on average. The occurrence of the rains at a fixed date—even if these rains are very light in certain years—has strongly influenced the ecological solutions evolved by living organisms in order to survive. Birds, indeed, at least those species breeding during the rains, prepare themselves for breeding well in advance of the rains.

The trees, which are mostly thorny, hardly reach 10 m in the least dry places and are nowhere dense enough to constitute woodland—except in the rivers' valleys. The main genera are *Acacia* and *Balanites*, which put on new foliage during the short rainy season, while at the same time a grass layer, c. 50 cm high, grows rapidly and a short-lived and abundant insect life flourishes. The seeds produced by the grass layer fall on the ground and remain there, available until the next rains, of which the numerous seed-eating bird and mammal species take advantage. It is also worth observing that this temporary peak occurs as the Palaearctic migrants undertake their autumn migration over the Sahara.

The Sahel, nevertheless, in contrast to any other country, does not depend solely on the local rains. Its most salient features are the 2 large rivers, the Senegal and Niger, which are not fed by the scanty Sahelian rains, but by tributaries which catch their water far away in the Fouta Djallon mountain range of Guinea. These rivers have a seasonal regime and annually flood very large expanses of lowlands, quite independently of the local rains. The inundation zones are made up of an intricate system of temporary rivers, marshes and ponds which produce wild rice, water-lilies, reedbeds etc, the rapid and unrelenting evaporation creating mud-flats suitable for such as waders. The flood is also the time for most species of fish to spawn; but by the end of the flood, as the water grows shallower and many ponds are isolated, many small fish are unable to escape and are then an easy prey for fish-eating species. Thick woodlands of a particular

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*Based on a talk to the British Ornithologists' Club meeting on 8 November 1988.

Acacia, A. nilotica, grow on some floodable, clayish soils; being the only genuine woodlands in this latitude, they play an important rôle in the general ecology.

The Sahel is thus comprised of 2 strongly different eco-systems which operate in near independence.

What sorts of birds are to be found in such a contrasted and trying environment? Naturally, species closely adapted to aridity and species associated with wetlands, will be present; but the outstanding character of the Sahel bird fauna, taken as a whole, is the number of migrants, both Palaearctic and Afrotropical which are included, because migrants respond strongly to seasonal climates. In the list of northern Senegal birds are some 150 Palaearctic species I have identified out of a total of 370 species (the coastal species, but not the true marine species, being included); the Palaearctic migrants thus account for 40% of this list. However high this percentage may appear, it does not give a real idea of its actual impact, because the population of several Palaearctic species (e.g. ducks) largely outnumbers that of the equivalent native species.

The Bush Steppe

This is the typical Sahel, relentlessly dry for 9 continuous months. Three main groups of birds which inhabit, at least temporarily, this steppe, can be distinguished.

Sedentary species, so called, although they are more or less nomadic: Helmeted Guinea-fowl *Numida meleagris*, Senegal Parrot *Poicephalus senegalus*, Long-tailed Parakeet *Psittacula krameri*, Chestnut-bellied Sand-grouse *Pterocles exustus*, Temminck's Courser *Cursorius temininckii*, Chestnut-backed Finch-lark *Eremopterix leucotis*, and several African warblers (*Eremomela, Sylvietta . . .*).

Afrotropical migrants, including both short and long-range migrants. Amongst them: Denham's Bustard *Otis denhami* (a very large bird), Bronze-winged Courser *Cursorius chalcopterus*, a sand-grouse, a bee-eater, and several cuckoos and kingfishers. Some migrants have their breeding quarters farther south, in a more wooded region and come north only for the off-season; but several species (White-throated Bee-eater *Merops albicollis,* several cuckoos) come to the Sahel in order to breed there.

Palaearctic migrants, which will be elaborated on later.

In actual fact, since many Afrotropical species are nomadic or migratory and since all the Palaearctic birds are migratory, the Sahel population is ceaselessly changing in the species' efforts to cope with seasonal and variable resources. We have some figures on this population, obtained through monthly censuses carried out in an intensively studied plot.

The maximum total number of birds per hectare occurs during the rainy season and coincides with the autumn passage of the Palaearctic migrants, in September–October: this maximum is 5.5–10 birds/hectare; and the minimum, which occurs in May–June, at the end of the dry season (when all the Palaearctic species have left) is 1–1.5 birds/hectare. The ratio of 10:1 between the maximum and minimum is large, yet the density of the total population is low, even at the maximum of 10 birds in the rainy season. These figures, however, are somewhat different for several large sized species which were not regularly censused: the larger bustards, the Ground Hornbill *Bucorvus abyssinicus*, the Helmeted Guinea-fowl, the Ostrich *Struthio camelus* are not included in our figures, because of their irregular distribution.

On a more general basis, it is easy to realize that the gap between the maximum and the minimum has to be filled by migratory birds, either Palaearctic or Afrotropical.

Two sorts of Palaearctic migrants are observed on the bush steppe: those that are only on passage and winter farther south, and those that actually winter in the steppe.

The passage migrants have not received much attention; for example the Cuckoo *Cuculus canorus*, Golden Oriole *O. oriolus*, several warblers and Ortolan Bunting *Emberiza hortulana*, after crossing the Sahara in the autumn, remain some time in the Sahel, obviously in order to make some recovery. Now, the Sahel in autumn offers, depending on the rains, uncertain resources and this variable, unreliable situation is likely to influence the progress of the migrants, so that their sojourn is unpredictable from year to year.

The wintering visitors in the Sahel have been the subject of many studies—yet rarely long term ones—in order to determine which factors are responsible for their fluctuations and, for some of them, their decline. But it is difficult to disentangle and estimate the different factors at work in the survival of migrants wintering in the Sahelian bush steppe such as, for instance, Common Quail *C. coturnix*, Wryneck *Jynx torquilla*, Hoopoe *Upupa epops*, Woodchat Shrike *Lanius senator*, Tawny pipit *Anthus campestris*, Redstart *Ph. phoenicurus*, Wheatear *Oe. oenanthe* and Whitethroat *Sylvia communis*. Chiffchaffs *Phylloscopus collybita* winter in the riverine vegetation of the valley, not in the steppe itself.

Several ornithologists (R. E. Moreau in particular and more recently K. Curry-Lindhal) have attempted to analyze the conditions met by the migrants in this steppe and have wondered why and how migrants could survive at all in this sort of habitat. Although it is not relevant here to raise again these questions, I can make a few comments: the density of the wintering Palaearctic species is very low, which makes any discussion, e.g. on competition and niche saturation, very risky. Also, besides some arid land species (e.g. Wheatear, Bonelli's Warbler *Phylloscopus bonelli*), the others (e.g. Redstart, Wryneck, Whitethroat, Blackcap *Sylvia atricapilla*) winter also, and in larger numbers, in the much richer habitat of the valleys and we may wonder whether the Sahelian steppe is not a second choice habitat to which any surplus of migrants is forced to retreat, but this is pure speculation.

The River Valley and the Wetlands

From this survey of the bush steppe and its sparse population, we can, within walking distance, go over to the valley. There, thousands of hectares of lowlands and pans are watered, not only by the small rains, but by an enormous volume of water flowing from Guinea. The resulting cornucopia provides several categories of food.

Fish

Most species of fish spawn when the lowlands are flooded, where they find the new grass, seeds and insects. Then, the fry meet several fates: many small fish are caught in ponds, isolated by the falling water levels, but the rest are able to reach the river or more or less permanent marshes. From the birds' point of view, the most significant fish are those that can be captured regularly. Some quantitative data are available and they are impressive; they can compare with the richest waters in other parts of the world.

Undoubtedly, the most conspicuous and important fish consumers are White Pelicans *Pelecanus onocrotalus*, whose numbers in the Senegal delta are somewhere about 5000 and which breed there. During their several months stay, with an average daily intake of 1 kg of fish per bird, we can accept a consumption of at least 5 tons a day for this species.

In the heron family, Egrets, Squacco *Ardeola ralloides* and Night Herons *N. nycticorax* reproduce in mixed colonies with Long-tailed Shag *Phalacrocorax africanus*, African Darter *Anhinga rufa* and Wood *I. ibis* and Sacred Ibises *Threskiornis aethiopicus*, from the outset of the flood, catching fish in the shallow waters; several thousands of nests have been censused. Other less conspicuous species take their share of fish: kingfishers, gulls and terns. Even rather clumsy species fish whenever it is easy, the White Stork *C. ciconia* for instance.

These fish consumers have several characteristics in common. Because their food supply undergoes big fluctuations, they are migratory, either towards the Palaearctic or within the continent. Pelicans, for example, wander in search of plentiful food from northern to southern Senegal, northward along the Mauritanian coast and probably eastward also to Mali and perhaps farther east to Chad.

Several of these species breed in colonies, all more or less vulnerable to predation. The pelicans, owing to their conspicuousness and the length of their breeding cycle, need very secure islets together with an abundant supply of fish; they are thus often compelled to travel considerable distances, up to 100 km, to obtain their food. The colonies of herons and cormorants are often raided by poachers and the trees on which they nest (*Acacia nilotica*) are felled for charcoal.

The consumption of such vast quantities of fish, even though most are of small size, raises the question of competition with Man, himself an important and ruthless fish consumer. The sharp decline of several fish-eating bird species in regions where fisheries have been developed (Cape of Good Hope) is a good example. In the Sahel, either in the Senegal or Niger valleys, although the locals fish actively, such competition does not seem an immediate threat: small fish are usually ignored. But agricultural developments, which generally put an end to natural flooding, heavily disturb the breeding cycle of the fish and of their predators. Man's ultimate remedy, disastrous for birds, is fish-farming.

Invertebrates

The sudden swarming of invertebrates during the rainy season is all too familiar to those who have lived in the tropics, if only for the profusion of unpleasant little creatures. The consumption of insects by birds is much more widespread than that of fish—undoubtedly because it involves less fundamental adaptations, but also because insects are found everywhere, in water, soil, vegetation and in the air. Accordingly, the predators of insects, both Palaearctic and Tropical, are very varied. Many species have a mixed diet and take also fish, seeds and amphibians, so that variety is further increased.

The largest population of insectivorous birds are found near the river. Among those from the Palaearctic, several species or groups are of particular interest for example, sandpipers and stints, Garganey *Anas querquedula* and Pintail *A. acuta*, which number hundreds of thousands, all of which, though waterbirds, have a mixed diet. Several insectivorous passerines are also important insect consumers. The most noticeable are Sand Martins *R. riparia*, White *M. alba* and Yellow Wagtails *M. flava* and the warblers which inhabit the riverine vegetation (e.g. Whitethroat, Blackcap, Chiffchaff). All the Palaearctic migrants, with a few exceptions, such as the Turtle Dove *Streptopelia turtur*, eat insects to some extent.

Seeds

The production of wild seeds (Graminaceae, water-lilies) is sufficiently large to have prompted Man to harvest them, as I myself witnessed some years ago. The yield of certain grasses (*Panicum, Echichloa*) is 200 or 300 kilos per hectare, whereas Sorghum, without fertilizer or irrigation, does little better.

Seeds are eaten by both Palaearctic and African species. Amongst the Palaearctic species are Garganey, Pintail (also partly insectivorous), and Ruffs *Philomachus pugnax*, whose population, in the region of millions is partial to rice-fields, where they pick up the spilled grain, Black-tailed Godwit *L. limosa* and, during the spring passage, millions of Turtle Doves.

The Afrotropical ducks are far less numerous than the Palaearctic ones and, of course, there are practically no tropical waders.

But one of the major seed-consumers is an African passerine, the Red-billed Quelea *Q. quelea*, which is the most numerous bird in the continent, breeding in colonies with hundreds of thousands of nests. I counted on a single *Acacia raddiana* c. 1200 nests. The nestlings are fed both seeds and insects and the adults roam the lowlands in search of grass seeds. Unfortunately for these little birds, and for Man, it is a small step from wild seeds to cereals, and agricultural projects are precisely developed (for obvious reasons) in the Sahel valleys, where granivorous birds are most abundant.

Fruit

Fruit is the only food category which is not really plentiful and, interestingly, none is produced during the rains.

In conclusion, I hope the above points underline, as I intended, the contrasts observed in the Sahel between the rich wetlands and the arid bush steppe. I have also emphasized the fundamental variability of the Sahel as a whole, seasonally and annually, and its main consequence, namely the enormous and temporary surplus which can be utilized only by immigrant populations, to such a point that, equally paradoxically, several Palaearctic bird species greatly outnumber the local ones, especially in the Sahelian wetlands.

The sharp contrast between wetlands and arid steppe, between the dry season and the short rainy season, the unpredictable variability of the climate (in certain years the rains fail almost completely) have all contributed to the evolution of the migratory birds, study of which has fascinated so many ornithologists and whose evolutionary adaptations are still under constant and active pressure.

From the ornithologist's point of view, the study of migrations, and particularly the migration over north and western Africa, because it raises so many challenging questions, is certainly one of the most stimulating, but also one of the most difficult. Without seeming over-pessimistic, I can say that when one thinks one has discovered at last a solution to a problem in this field, the next season often brings one contradiction, and one has to go back to the birds and study them again; but this is the rule of one's favourite game, ornithology.

Swinhoe's Storm Petrel *Oceanodroma monorhis*; a species new for Thailand

by Duncan Parish & Surapol Ardseungnurn

Received 17 March 1988

On 18 October 1985 the corpse of a small, dark, petrel was found in Ban Da To Village, 10 km east of Pattani Town, on the east coast of the Thai Peninsula in South Thailand (6°55′N, 101°20′E). The bird was discovered by the authors during a joint survey of Pattani Bay by INTERWADER (The East Asia Pacific shorebird Study Programme) and Prince of Songkla University (PSU). The bird, which appeared very fresh, was found on a pile of rubbish next to a house, 20 m from the shore of the Bay. According to the villagers, the bird had been accidentally caught the previous night in a net set for fish in the bay.

Description

A small, all-dark petrel with a forked tail. Overall plumage dark brown with a pale brown bar across the greater wing coverts. The basal parts of the outer 6 or 7 (depending on wing) primaries had white shafts, but this would probably not be visible in the field. Soft parts were all black. The following measurements were made: wing 156 mm (unflattened), 161 mm (maximum-chord); outer tail feathers 70 mm; central tail feathers 57 mm; tarsus 24 mm; culmen 15 mm; bill tip to tail tip 195 mm; wingspan 480 mm.

There are 7 species of all-dark petrels with forked tails: Swinhoe's Storm Petrel *Oceanodroma monorhis*, Matsudaira's Storm Petrel *Oceanodroma matsudairae*, Markham's Storm Petrel *Oceanodroma markhami*, Tristram's Storm Petrel *Oceanodroma tristrami*, the dark-rumped form of Leach's Storm Petrel *Oceanodroma leucorhoa chapmani*,

TABLE 1

Morphometric measurements (mm) of Swinhoe's Storm Petrel *Oceanodroma monorhis* and the dark-rumped form of Leach's Storm Petrel *Oceanodroma leucorhoa chapmani*

	No.	*chapmani* Mean (range)	No.	*monorhis* Mean (Range)	Pattani bird
Wing	9	150.1 (148–152)	23	155.00 (146–165)	156–161
Tail	9	78.0 (75–82)	23	73.59 (65–80)	70
Tarsus	9	22.3 (21–23)	23	23.69 (22.3–25)	24
Culmen	9	15.3 (14–18.5)	22	14.43 (13.7–15.2)	15
Total length			2	198.50 (197–200)	195

Data on *monorhis* from Cramp & Simmons (1977) and measurements taken from specimens in the Zoological Reference Collection of the National University of Singapore. Data on *chapmani* (from Baja California) from W. R. P. Bourne.

Ashy Storm Petrel *Oceanodroma homochroa* and Black Storm Petrel *Oceanodroma melania*.

Matsudaira's and Tristram's Storm Petrels are larger than the bird in question (total length 250 mm/wingspan 560 mm). Tristram's also differs in having a more obvious diagonal upperwing bar, deeper fork to the tail, and usually, bluer or greyer cast to the plumage. Matsudaira's has a distinctive white patch on the distal portion of the upperwing, caused by the white shafts of all the outer primaries. Markham's and Black Storm Petrels are similar in plumage, but are larger (total length 230 mm/wingspan 490 mm). The plumage of the Ashy Storm Petrel is blackish-grey, not black as in the Pattani bird.

This leaves Swinhoe's Petrel and the dark-rumped form of Leach's Petrel. The latter normally occurs on the eastern, while the former occurs on the western side of the Pacific (Harrison 1983).

By comparing the measurements of the Pattani bird with those of *chapmani* and *monorhis* (Table 1) it is concluded that the species found was Swinhoe's Storm Petrel. It is too long in the wing and tarsus and too short in the tail for *chapmani*.

Status

Swinhoe's Storm Petrel breeds in the NW Pacific May–August and migrates to the Indian Ocean. The precise migration route is not known, but is possibly through the Sunda Strait to the Indian Ocean. In Thailand there have been no previous records (P. D. Round). In Peninsular Malaysia/Singapore it has been collected in small numbers in the Malacca Straits and off Singapore in September–November and April and May (Medway & Wells 1976). There have been 2 recent records from the east coast of Peninsular Malaysia: D. M. Simpson observed 30 in a flock 4 km off the Terengganu coast near to Kerteh on 21 September 1982; D. Diskin observed one on 18 September 1983 heading SW between Rawa and Tioman Islands in Pahang State (Wells, D. R. in prep.). The most recent record in Singapore was of a bird observed on 7 October 1984 in outer Singapore Harbour by H. A. Buck (Hails, in prep.). Van Marle & Voous (1988) quote 4 records from Sumatran waters, all between Singapore and the Sunda Strait (between Java and Sumatra). In Borneo, it is considered an occasional visitor (Smythies 1981) with single records in Sabah

(January) and Sarawak (September). There is only one record for Hong Kong waters, June 1961 (Chalmers 1986).

Discussion

Although there are very few published records for countries bordering the South China Sea, this is probably due to the difficulties involved in observing and identifying Swinhoe's Storm Petrel. The local fishermen in Pattani Bay claimed to be familiar with this species, but this may be due to confusion, since the Barn Swallow *Hirudo rustica* has the same local name and is a common migrant in the area. Southward movement down the east coast of the Malay Peninsula would be consistent with a migration route from the NW Pacific to the Indian Ocean via the South China Sea and the Sunda Strait. Further observations of this species are therefore to be expected, particularly from boats in the South China Sea.

Acknowledgements

The survey was conducted in conjunction with Prince of Songkla University with financial assistance from INTERWADER and the International Council for Bird Preservation. Frank Lambert obtained measurements of specimens in the Zoological Reference Collection of NUS. Crawford Prentice, David Wells and Dr J. F. Monk made useful comments on the manuscript. Dr W. R. P. Bourne provided useful additional measurements of *O. monorhis* and *O. leucorhoa chapmani*.

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Biometrics, iris and bill colouration, and moult of Somali forest birds

by Brian Wood

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Although the dimensions and weight attained by individual birds are probably the consequence of a host of conflicting selection pressures, to some extent they reflect both their evolutionary history and their immediate ecology. Our understanding of the influence of environment on morphology is likely to improve as data become available from more and more populations which may inhabit environments that differ subtly from one another. Whilst we know that quite striking size and weight differences may occur between locations only a few hundred kilometres apart (Moreau 1944, Britton 1977, Hanmer 1978), the overall picture is far from complete for any one species. Regrettably, some populations may be eliminated before any data can be obtained, as their habitats are destroyed during the course of 'development'. Data from populations at the edge of a species' range are often most enlightening, since relative isolation and slightly atypical environmental conditions can produce strik- ing morphological responses, perhaps eventually leading to speciation. If we are ever to come near to attaining a complete understanding of how species have reacted to their environment, it is vital that data are collected from as many populations as possible whilst the opportunity still exists.

Study site, materials and methods

Riverine forest was once extensive throughout the valleys of the Shabeelle and Jubba rivers in Somalia (Pichi-Sermoli 1957). It has now been cleared almost entirely along the Shabeelle and only 2 sizeable blocks remain in the Jubba valley, totalling about 400 ha (Madgwick *et al.* 1988). The forest depends upon the river for its existence, both as a source of ground-water and for the creation of suitable regeneration niches by periodic flooding. Riverine forest rarely extends more than c. 300 m either side of the river and has a varied structure and species composition, but is mostly evergreen, with a canopy height of 20 m or more, often with a dense understorey (Madgwick in press).

As part of the Somalia Research Project, the bird community of the remaining blocks of riverine forest, situated near to Hangoodle (01°05′N, 42°36′E), was surveyed during August and early September 1986. Mist nets were used to capture c. 500 individual birds, which were measured, weighed (to the nearest 0·1 g for birds weighing less than 50 g, and to the nearest 1·0 g for heavier birds). Information was also collected on all birds in moult (recorded by the method indicated by Ginn & Melville 1983). All birds were ringed, either with plastic colour rings or metal rings supplied by the East African Natural History Society, and released. Many were subsequently recaptured, enabling estimates of population size and range to be made (Wood in press).

There are few previous records from Somalia of many of the species recorded in this survey of the Jubba forests. It is apparent that most have a very localised distribution within the country (Ash & Miskell 1983). Unless the recent very rapid clearance of riverine forest is halted, there is a real risk that this bird community could disappear from Somalia within the next few years. Its continued existence is also threatened by spraying with insecticide to eradicate tsetse fly and by the imminent construction of a dam upstream, near Baardhere.

TABLE 1

Biometrics of birds caught in riverine forest, southern Somalia

		WING LENGTH			WEIGHT		
SPECIES	NUMBER	Range	Mean	S.D.	Range	Mean	S.D.
Accipiter badius	2	201–214	207		207–218	212	
Accipiter minullus	2	153–155	154		104–111	107	
Accipiter tachiro	1		250			440	
Turtur chalcospilos	1		106			67	
Turtur tympanistria	7♂♂	111–119	114.7	3.2	65–79	74.3	5.2
Turtur tympanistria	8♀♀	108–117	111.6	3.0	54–72	61.9	5.2
Turtur tympanistria	1		107			56	
Ciccaba woodfordi	4	243–253	249		241–294	266	
Glaucidium capense	4	136–141	138		100–112	106	
Apaloderma narina	7	119–127	122.7	2.4	52–59	55.0	2.9
Ispidina picta	21	47–57	51.0	2.7	8.9–13.6	10.8	1.5
Halcyon albiventris	7	92–96	94.1	1.5	39.9–45.8	44.2	3.3
Halcyon senegaloides	4	100–103	102		61–72	66	
Phoeniculus purpureus	1		140			87	
Indicator variegatus	15	99–108	103.0	3.2	39.5–46.8	44.7	2.1
Campethera abingoni	1		103			58	
Dicrurus ludwigii	8	97–107	101.1	4.9	22.3–28.7	25.7	6.5
Turdoides squamulatus	5	101–105	103		65–76	69	
Andropadus importunus	10	80–89	83.1	3.6	22.4–31·6	27.0	2.6
Chlorocichla flaviventris	6	95–106	101.5	4.9	28.3–47.1	40.5	6.5
Nicator chloris	2	92–104	98		36.3–46.0	41.1	
Phyllastrephus strepitans	45	73–88	81.6	4.3	21.4–32.9	27.1	3.5
Cercotrichas quadrivirgata	20	72–83	78.0	2.9	20.3–26.3	24.1	1.7
Cossypha heuglini	2	85–93	89		30.7–33.6	32.1	
Cossypha natalensis	69	81–95	88.7	3.4	23.7–33.4	29.1	2.3
Apalis melanocephala	1		49			8.4	
Camaroptera brachyura	31	46–57	52.0	3.4	7.1–10.3	8.7	0.8
Muscicapa caerulescens	10	71–80	76.2	2.9	15.6–17.2	16.4	0.6
Platysteira peltata	2♂♂	63–64			12.8–13.2		
Platysteira peltata	6♀♀	60–66	61.7	2.3	11.2–12.8	11.9	0.6
Erythrocercus holochlorus	1		45			5.0	
Tersiphone viridis	6♂♂	81–89	83.8	2.9	12.8–14.0	13.1	0.4
Tersiphone viridis	8♀♀	72–78	75.1	2.3	9.9–13.3	11.3	1.0
Trochocercus cyanomelas	13♂♂	62–67	64.8	1.5	9.6–12.1	10.2	0.7
Trochocercus cyanomelas	9♀♀	63–67	64.9	1.3	9.3–11.2	10.1	0.7
Trochocercus cyanomelas	1		64			9.6	
Dryoscopus cubla	5	78–82	80		25.0–30.0	26.9	
Laniarius ferrugineus	1		89			38.8	
Anthreptes collaris	9♂♂	48–51	49.3	0.9	5.3–6.9	6.2	0.5
Anthreptes collaris	8♀♀	47–50	48.4	0.9	5.4–6.5	5.9	0.4
Anthreptes collaris	1		51			6.5	
Nectarinia amethystina	1♂		63			9.4	
Nectarinia olivacea	54♂♂	56–65	58.6	1.5	6.8–9.1	7.7	0.4
Nectarinia olivacea	49♀♀	51–54	52.6	0.9	6.2–8.7	7.1	0.5
Nectarinia veroxii	1		56			8.7	
Ploceus bicolor	26	84–91	87.9	1.9	29.4–37.5	33.1	2.1

Results

The weights and wing length (maximum chord, Svensson 1984) of all birds at the time of their original capture are summarised in Table 1. Recapture weights have not been included as all recaptures were within a few days of original capture and consequently weights may have been influenced by handling and ringing. As was to be expected, there was

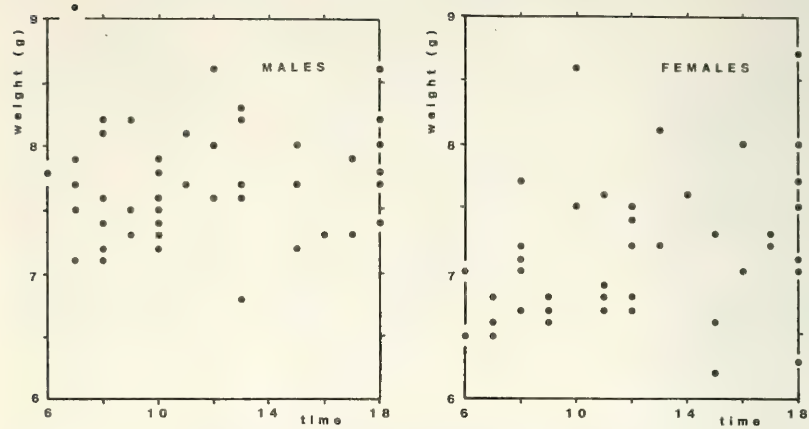

Figure 1. The weights of male and female Olive Sunbirds *Nectarinia olivacea* at time of capture in southern Somalia. Both sexes show a tendency to increase progressively in weight throughout the day.

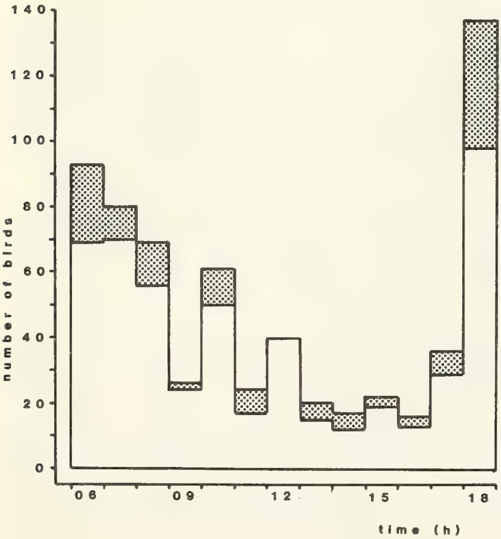

Figure 2. The number of birds caught (open histogram) and recaptured (shaded) in riverine forest in southern Somalia throughout the day.

evidence for diurnal weight increases, particularly for species caught often (Fig. 1), but no corrections to the recorded weights have been made to allow for this. Most species were caught throughout the day, or equally often in the evening as in the early morning (Fig. 2), so little bias will have been introduced by the lack of correction. Where weights differ from those of other populations of the same species, this is discussed in the systematic list which follows. Comparisons have been made with published weights from Liberia (Colston & Curry-Lindahl 1986), Ghana (Greig-Smith & Davidson 1977), Nigeria (Jones 1984), Kenya (Britton 1970, 1972, 1977, Karr 1976a, Mann 1985). Tanzania (Moreau 1944), Zambia (Britton & Dowsett 1969, Peirce 1984), Mozambique (Hanmer 1978, 1980), Malawi (Hanmer 1978, 1980, Johnson 1985), Zimbabwe (Earle 1981) and South Africa (Biggs *et al.* 1979).

Several birds were also captured and ringed in degraded riverine forest at Balcad (02°20′N, 45°32′E) on the Shabeelle River on 19/20 September. Where relevant, details of these birds have also been included.

Species accounts

SHIKRA *Accipiter badius*

Both birds captured were replacing their first secondary and were in the middle of tail moult. This begins with feathers 1 (centre) and 3, with 2 and 6 being the last to be replaced. No contour moult was occurring. Both were considerably heavier (207, 218 g) than a sample of 56 birds from South Africa (range 75–158 g).

LITTLE SPARROWHAWK *Accipiter minullus*

One of the 2 birds caught (7 Aug) was in full wing and tail moult, but was not moulting contour features; scores: primaries = 39, secondaries = 30, tail = 44.

EMERALD-SPOTTED WOOD DOVE *Turtur chalcospilos*

The single bird caught (5 Aug) was completing moult of wing and tail and was in mid contour moult.

TAMBOURINE DOVE *Turtur tympanistria*

Nine of the 16 birds were in moult. Timing of moult was very variable, with 3 birds in early wing moult (4 Aug–5 Sep) and 3 having completed primary moult but still in mid secondary moult. Tail moult was beginning in those in primary moult, but was completed or nearly so in others. Body moult was found at all stages. Male weights were significantly greater than those from Liberia, and both sexes were rather heavier than a small sample from East Africa (Britton 1970), but weighed almost the same as Tanzanian birds.

BARRED OWLET *Glaucidium capense*

One of 4 birds was beginning contour moult and replacing secondaries (score = 19 on 2 Sep). Somali birds had wing lengths (mean 138 mm) greater than those reported from Liberia (male 118, 2 females average 128 mm) but were considerably lighter (mean 106 g) than 5 birds from South Africa (average 129.4 g).

NARINAS TROGON *Apaloderma narina*

Six of 7 birds were completing moult (Fig. 3). Tail moult begins at 3 or 4 and ends at 1 and 6. Contour moult coincides with primary moult. Somali weights (mean 55 g) were considerably less than birds from Liberia (3 males, average 68.8 and one female 70.3 g) and one male from Zambia (72.0 g).

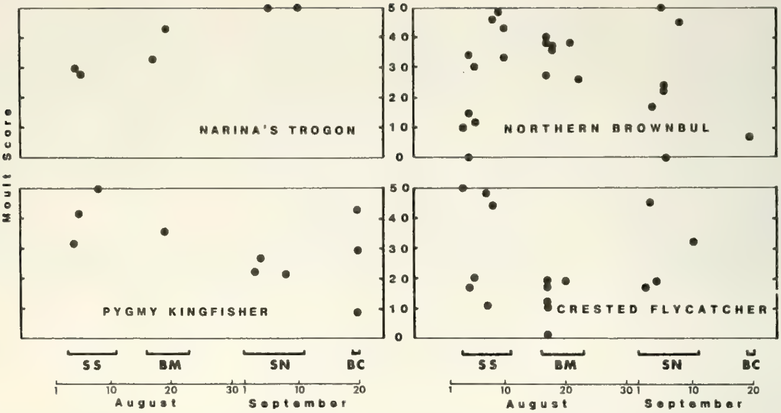

Figure 3. Primary moult scores of selected species caught in riverine forest. Horizontal bars indicate the periods of netting at Shoonto south (SS), Barako Madow (BM), Shoonto north (SN) and Balcad (BC).

PYGMY KINGFISHER *Ispidina picta*

Six of 21 birds were in active primary moult, as were 3 caught at Balcad on the Shabeelle on 19–20 Sep (Fig. 3). Rectrices were either old or up to mid-moult; contour moult was at all stages. This roughly coincides with the timing of the moult of immatures in Nigeria (Jones 1984) but is about 4 months later than in Malawi (Hanmer 1980), where moult appears to be protracted. Weights (mean 10.8 g) were significantly less than Nigerian birds (mean 12.4 g at 11°50′N), very much lighter than wet-season birds from Zambia (mean 14.3 g) and also much lighter than Malawi birds. They are close to weights from Ghana in the wet season (adult mean 11.4 g, juvenile mean 10·6 g, at 9°15′N) and of birds collected in Liberia (8 males mean 9.7, 6 females 11.1).

BROWN-HOODED KINGFISHER *Halcyon albiventris*

Three adults were in mid moult of primaries in early Aug and the fourth adult had suspended primary moult at score = 30. All 3 were beginning contour moult, and tail moult varied from about 1/3 to 2/3 completed. Three immatures caught in early Sep had all suspended primary moult (scores = 15 to 25). Mean wing length was less (94.1 mm) and weight lighter (44.2 g) than birds from Mozambique and Malawi (wing 96–108 mm, weight 48–68 g), where moult occurs 6 months out of phase with moult recorded in Somalia.

GREEN WOOD-HOOPOOE *Phoeniculus purpureus*

The single bird caught was in mid tail moult and had begun primary moult.

SCALY-THROATED HONEYGUIDE *Indicator variegatus*

Three out of 15 were in active primary moult late Aug/early Sep. One had suspended primary moult at score = 15. Contour moult had begun in 2 birds.

SQUARE-TAILED DRONGO *Dicrurus ludwigii*

Five out of 8 were in active primary moult (scores = 17 to 41). These 5 and one other were in active tail, secondary and contour moult. Mean weight (25.7 g) was considerably lighter than 2 birds from Liberia, rather less than ones from Tanzania and very similar to weights in Ghana.

SCALY BABBLER *Turdoides squamulatus*

One out of 5 was in active regular primary moult (score = 28 on 5 Sep) and contour moult. Two more had irregular moult of primaries and secondaries.

ZANZIBAR SOMBRE GREENBUL *Andropadus importunus*

Six out of 10 were in primary moult in early Sep (scores = 22 to 44). One caught at Balcad on 20 Sep had suspended moult at score = 10. Weights were very similar to birds from the coast of Kenya (Britton 1972).

NICATOR *Nicator chloris*

One was undergoing a complete moult when caught on 17 Aug (primary score = 32).

NORTHERN BROWNBUL *Phyllastrephus strepitans*

Twenty-four out of 45 were moulting. Twenty-one were in active primary moult (Fig. 3). Ten had a regular moult of secondaries and tail, and most were replacing contour plumage. Tail moult was irregular in the other moulting birds. Britton (1972) sexed some Kenyan birds on wing length. Somali birds also appear to be separable on this character, with a wing length of 81 mm bisecting our sample exactly (one bird indeterminate). Iris colour varied, usually being recorded as pale stone or as brown/reddish-brown, but colour did not clearly correspond with size or sex (Fig. 4), although all the heaviest males and several of the largest females had brown or reddish-brown irises. Iris colour may be related to dominance status or could merely be a dimorphism that is not related to other characteristics.

EASTERN BEARDED SCRUB ROBIN *Cercotrichas quadrivirgata*

Of 20 birds caught, 3 had almost completed moult (primary scores = 45 to 55) on 16–19 Aug and a fourth bird had irregular moult of some primaries and secondaries. One of the 4 was completing contour moult.

WHITE-BROWED ROBIN CHAT *Cossypha heuglini*

The 2 birds caught had weights (30.7, 33.6 g) that were intermediate between those of birds from coastal and western Kenya but closer to the former. They were lighter than most Zambian birds.

GREY-BACKED CAMAROPTERA *Camaroptera brachyura*

Four out of 31 were completing tail moult, 2 were completing contour moult and 1 had almost completed primary moult (score = 47). All others caught appeared to have fresh wings but rather abraded tails. Weights (mean 8.7 g) were similar to 3 birds from southern Kenya (mean 8.9 g) but were lighter than birds from all other locations in Africa, including coastal Kenya (average of 65 birds, 9.29 g).

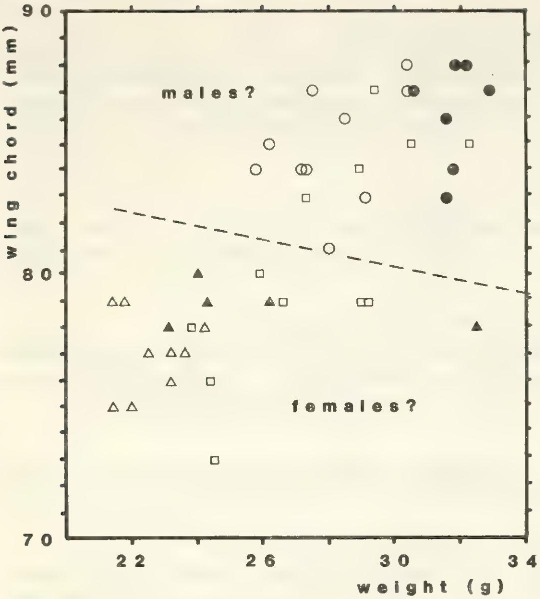

Figure 4. The relationship between wing length, weight and iris colour for probable male (circles) and female (triangles) Northern Brownbuls *Phyllastrephus strepitans* in southern Somalia. Solid symbols are for birds with brown or reddish-brown irises, open symbols for birds with pale stone coloured irises. The iris colour of birds represented by open square symbols was not recorded.

BLACK-THROATED WATTLE-EYE *Platysteira peltata*

Seven out of 8 birds had some moult. Six were beginning contour moult, 1 was in active regular primary moult (score = 21 on 18 Aug) and 6 were replacing tail and secondary feathers.

LITTLE YELLOW FLYCATCHER *Erythrocercus holochlorus*

One bird caught and 3 seen in the field all had flesh-pink bills, not black as illustrated in Williams & Arlott (1980).

PARADISE FLYCATCHER *Terpsiphone viridis*

Out of 14 birds caught, 2 were beginning contour moult and primary moult (4 and 10 Sep) and 2 were replacing some secondaries. None was in tail moult. Weights (♂ mean 11.3, ♀ mean 10.2 g) were less than those from Liberia, western Kenya, Malawi and Zambia and also less than most birds from Ghana.

CRESTED FLYCATCHER *Trochocercus cyanomelas*

Sixteen out of 23 were in moult. Fifteen showed various stages of primary moult (Fig. 3), mostly with concurrent centrifugal tail moult. Fourteen were undergoing contour moult. Weights (mean ♂ 10.2, mean ♀ 10.1 g) were similar to 3 birds from southern Kenya.

BLACK-BACKED PUFFBACK *Dryoscopus cubla*

One adult female was undergoing primary moult (score = 38 on 10 Sep) and one immature was beginning contour moult.

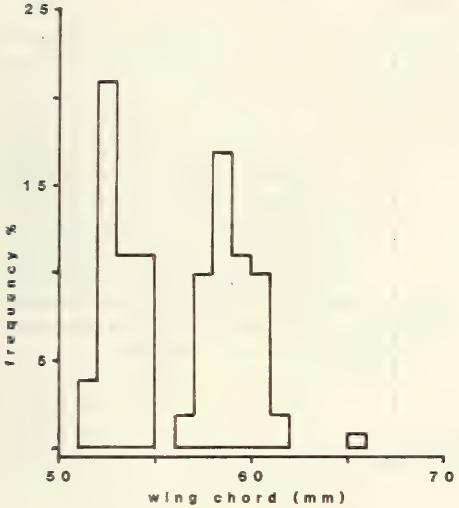

Figure 5. Wing length of Olive Sunbirds *Nectarinia olivacea* in southern Somalia.

COLLARED SUNBIRD *Anthreptes collaris*

Two out of 18 were beginning primary moult (scores = 2 and 16 on 4 and 10 Sep). Weights (mean ♂ 6.2, mean ♀ 5.9 g) were lighter than birds from Liberia, Zambia and western and coastal Kenya.

OLIVE SUNBIRD *Nectarinia olivacea*

Of 103 birds caught, 5 were beginning moult at the end of the survey period. Two had started primary moult (scores = 6, 11 on 7, 10 Sep) and 4 were beginning contour moult. Birds were not sexed at the time of capture, as both sexes have yellow pectoral tufts in Somalia. However, subsequent analysis of wing lengths enabled all birds to be sexed, males having wings 56 mm or longer and females 54 mm or less (Fig. 5). Both weights (mean ♂ 7.7, mean ♀ 7.1 g) and wing lengths (mean ♂ 58.6, mean ♀ 52.6 mm) are substantially greater in western Kenya (average weight 10.76 g, average wing length 62.96 mm of 42 unsexed birds). Weights are also less than in Liberia, coastal Kenya and substantially less than birds in Zimbabwe at all times of year.

MOUSE-COLOURED SUNBIRD *Nectarinia veroxii*

The single bird caught was in primary moult (score = 14 on 6 Sep) and was beginning contour moult.

DARK-BACKED WEAVER *Ploceus bicolor*

Early in the survey 8 birds out of 26 were in moult. Four were completing primary moult but 2 were midway through (scores = 23, 27 on 4, 5 Aug). Tail moult was ending in these latter 2 and 1 other, and all 3 were completing contour moult. Iris and bill colour varied considerably, and appears to be related to size (Fig. 6). Most heavy or long-winged birds had irises described as very dark brown, brown or dark hazel, whilst the remainder had brick red or dark brick irises. All had bluish-white bills

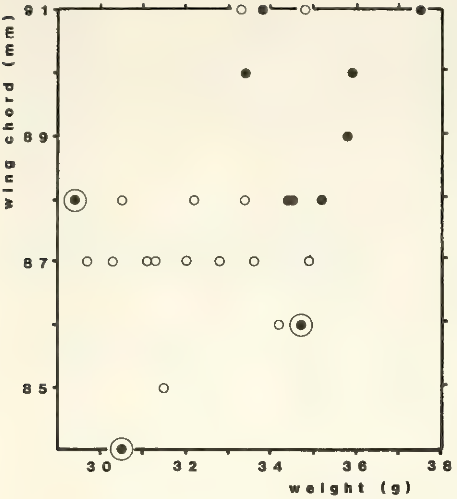

Figure 6. The relationship between wing length, weight, iris colour and bill colour of Dark-backed Weavers *Ploceus bicolor* in southern Somalia. Solid symbols indicate birds with very dark brown, brown or dark hazel irises, open symbols represent birds with brick red or dark red irises. Symbols encircled are birds with yellow-horn bills (probably immature).

except 3 light or short-winged birds with brown irises. These had yellow-horn or yellow-grey bills and may have been immatures.

Discussion and conclusions

Insects, which form a major part of the diet of many of the bird species caught in the Jubba forest, are likely to be most abundant during the wet season and insectivores are most likely to breed at that time. In southern Somalia there are 2 wet seasons each year; the longest and most predictable 'gu' rains fall from April to June, and there is usually a less reliable 'dayr' wet season October/November. The most severe dry season lasts from December to March ('jilaal').

More than half all bird species evidently moult during the less severe dry season from July to September ('haggai'), but there are considerable differences in timing between species. In Uganda, where there are 2 substantial wet seasons each year, *Camaroptera brachyura* breeds twice each year and many birds can be found in moult in all months except April/May, when they breed. Moult is also often suspended during breeding September/October (Fogden & Fogden 1979). The few records of moulting birds in the Jubba suggest that here camaropteras moult early in the 'haggai' dry season, having probably bred during the 'gu' rains.

Cercotrichas quadrivirgata also moults early in the 'haggai', but most other species will still be moulting at the end of the 'haggai'. *Indicator variegatus, Turdoides squamulatus* and several flycatcher species have a particularly late moult. Surprisingly, none of the many *Cossypha natalensis* caught was in moult, although several juveniles were netted, which suggests that they breed during the 'gu' rains. Perhaps they moult very early, at the end of these rains, or not until the 'dayr' rains, when conditions for moult may be more favourable.

Where weights recorded in this study differ significantly from weights elsewhere in Africa, they are almost always lighter in the Jubba. As the study sites lie at just over 1°N and only a few metres above sea level, low weights were perhaps to be expected. Birds are likely to be bigger and weigh more where temperatures are lower, a pattern which has been described for several species in East Africa that occur at both coastal and much higher inland localities (Moreau 1944, Britton 1977, Hanmer 1978).

Other factors will select for small body size. Perrins (1970) suggested that small females will be able to begin breeding earlier following a seasonal increase in food supplies. In a situation where 2 short favourable seasons occur each year, during which breeding may be attempted, Downhower (1976) has found that only the smaller individuals are able to breed successfully if the favourable season is particularly short. Selection for small body size will be particularly strong for females, leading to a possible sexual size dimorphism.

Several species recorded from the Jubba are noticeably size dimorphic, with females being the smaller sex. This is quite commonly the case in African forest passerines (Dowsett 1983), but many more data are required before we can know if the degree of size dimorphism varies between populations. In southern Somalia the 2 wet seasons each year are both of short duration and may be very unreliable, thus selecting for small individuals that are able quickly to attain breeding condition. There are several cases where the weights of birds from the Jubba are lighter than birds almost everywhere else in Africa, except for some recorded in northern Ghana (Greig-Smith & Davidson 1977). The forest species which occur there are also likely to be dependent on narrow strips of gallery forest, along the watercourses. Small individuals could be favoured because conditions are as seasonally variable there as they are along the Jubba.

Acknowledgements

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Note on the osteology and taxonomic position of Salvadori's Duck *Salvadorina waigiuensis* (Aves: Anseridae [Anatidae]).

by Jiří Mlíkovský

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Salvadori's Duck *Salvadorina waigiuensis* is an enigmatic bird of New Guinea mountain streams and lakes (Kear 1975), whose taxonomic relations are even less known than its life habits. It was originally described in a separate genus, *Salvadorina*, by Rothschild & Hartert (1894). Mayr (1931) reevaluated their data, added brief comments on the osteology of *Salvadorina* and synonymised subsequently that genus with *Anas*. All subsequent monographs and lists of the waterfowl (e.g. Delacour 1956, von Boetticher & Grummt 1965, Johnsgard 1978, 1979, Kolbe 1984) followed Mayr's (1931) opinion. No further taxonomic study of *Salvadorina* has been undertaken.

I was recently able to obtain for study 2 partial skeletons of this duck from the Natural History Museum of Humboldt University in Berlin, East Germany (NKMB 0/874 and 0/876) which were collected in New Guinea in 1928 by Ernst Mayr and first described by himself shortly thereafter (Mayr 1931). Salvadori's Duck was not studied by either Verheyen (1953, 1955) or Woolfenden (1961) in their treatises on waterfowl osteology because of the scarcity of skeletons of *Salvadorina* in museum collections (none was reported by Wood & Schnell 1986). In view of this, it nevertheless seems useful to present here the relevant observations, in spite of their incompleteness. The present paper itself is a contribution to my long-term study of the taxonomy and evolution of the waterfowl.

OSTEOLOGY

The following bones of *Salvadorina waigiuensis* were available for study: 4 coracoids, 4 scapulae, proximal parts of 4 humeri, 2 sterna, 2 furculae and a pelvis. In general appearance these bones resemble those of dabbling ducks (Anatini) more than those of any other waterfowl tribe (see also Mayr 1931), but possess some highly specific features. The **humerus** of *Salvadorina* differs from that of *Anas* in having the head only slightly undercut by the capital groove and the pneumatic fossa ovaloid and very small. In the last 2 characters *Salvadorina* resembles *Malacorhynchus* (see Woolfenden 1961). The **coracoid** of *Salvadorina* resembles that of *Anas* and differs from that of diving tribes in having the angle between the axis of the head and the plane of the dorsal surface very small. The **Scapula** of *Salvadorina* differs from that of *anas* in having a knoblike process on the acromion, causing the anterior edge between the acromion and the glenoid facet to be concave. In this character *Salvadorina* agrees with the diving ducks. The **furcula** of *Salvadorina* differs from that of *Anas* in having the claviculae compressed, and the furcular process minute. The latter character *Salvadorina* shares with *Hymenolaimus* and various diving ducks (see Woolfenden 1961). The **sternum** of *Salvadorina* resembles that of *Anas*, particularly in having a ventral manubrial spine present, 7 costal facets, and in being relatively narrow. The narrowest width between the costal margins in relation to the maximum length of the sternum is 0.382 and 0.395, respectively, in the 2 study specimens. The **pelvis** of *Salvadorina* resembles that of *Anas*, especially in being rather broad. The ratio of the least width of the acetabula to the maximum length of the pelvis is 0.291; in *Hymenolaimus* it is 0.296 (Woolfenden 1961).

These differences argue strongly against the inclusion of *Salvadorina* in *Anas* (*contra* Mayr 1931), but give no usable clues as to its taxonomic re-allocation. It is noteworthy, however, that at least 2 other duck genera occupy a similar taxonomic position, viz. *Hymenolaimus* from the mountains of New Zealand (Kear 1973) and *Malacorhynchus* from southeastern Australia and New Zealand (Frith 1967, Olson 1977). It might be speculated that these 3 aberrant, but otherwise *Anas*-like, genera are remains of an early radiation of the sub-family Anatinae (to which they undoubtedly belong) and that they stand closer to each other than to any other modern waterfowl tribe. Their general resemblance to the Anatini *sensu stricto* may well be misleading and does not necessarily imply true phylogenetic relationships. The constituents of Anatini form a morphologically generalised duck tribe (cf. Woolfenden 1961) which has become a taxonomic 'wastebasket' in which generally duck-like, but otherwise obscure genera are placed (cf. Mlíkovský 1983a, 1987).

It may thus be concluded (1) that Salvadori's Duck should not be included in the genus *Anas* and deserves separation at the generic level as *Salvadorina*, and (2) that it may, together with *Hymenolaimus* and *Malacorhynchus* form a relict genus of waterfowl that has survived up to the present, as have many other animals only in the Australian region. The relict nature of these genera and the expected prevalence of primitive features which characterise them, prevent their being properly defined as a tribe at present. The situation can be improved only after the extensive fossil record of the waterfowl (Brodkorb 1964, Howard 1964, Mlíkovský 1983b) is improved in the Australian region (cf. Rich & Van Tets 1982, Rich & Baird 1986) and completely re-evaluated; and after the internal anatomy of all waterfowl is studied in more detail. Complete skeletons and fluid-preserved specimens of *Salvadorina* are particularly needed.

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Notes on the nests and eggs of some Ecuadorian birds

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Considering the richness of its avifauna, surprisingly little has been published on the nesting habits of Ecuadorian birds, the only major studies apparently being those of Marchant (1959, 1960), who reported on the breeding species in the semi-arid southwestern portion of the country. The Western Foundation of Vertebrate Zoology initiated a long-term study of the breeding habits of the birds of Ecuador in 1987. This preliminary report includes new breeding information on Ecuadorian birds, including the first descriptions of the nests and eggs, or both, of several species or races.

Two of the authors (MMA and FCS) worked from 29 July to 23 August 1987 in the relatively undisturbed primary wet forest surrounding the small Jivaro village of Tayuntza, elev. 600 m, 54 km SE of Macas, on the eastern slopes of the Cordillera de Cutucu, Morona-Santiago Prov. (2°43'S, 77°52'W). LFK and NJS visited Ecuador 8–27 October 1987 and conducted field work primarily in the Quito region and (with JCM) in paramo near La Virgen, Pichincha Prov., the highest point (4000 m,) on the road between Quito and Baeza, Napo Prov. Incidental collecting was done in several other localities on the eastern slope of the Andes during these periods.

Nomenclature follows that of Meyer de Schauensee (1966), and egg shapes are those given by Palmer (1962: 13). Egg measurements are in mm and were made with Helios dial calipers accurate to the nearest 0.01 mm. Weights of empty eggshells were taken with an Allied model 7303DA electronic balance, and these data are given in grams in parentheses after the measurements; only the eggshells of fresh or slightly incubated eggs were weighed. All specimens are housed in the collections of the Western Foundation of Vertebrate Zoology (WFVZ).

SPECIES' DATA

SAPPHIRE QUAIL-DOVE *Geotrygon saphirina saphirina*

FCS found a nest of this species containing a recently hatched chick (WFVZ 42,457) on 8 August 1987 at Tayuntza. The nest (WFVZ 155,728) was located in disturbed riparian forest 3–4 m from a small creek and was placed over the moss-covered fork of a branch of a shrub 2.1 m off the ground. It was a typical columbid structure, being a loose platform of fine sticks, rootlets, and bits of green moss. The chick could be seen through the bottom of the nest, which measured 21 × 16 cm. An incubating bird (WFVZ 42,456) proved to be a female. No nests have previously been reported for this rather uncommon species (Goodwin 1967, Hilty & Brown 1986).

BAND-WINGED NIGHTJAR *Caprimulgus longirostris ruficervix*

FCS flushed one of these nightjars from a single egg on the ground at the base of a 7–10 m cliff made by a roadcut on the south side of a *quebrada* (canyon) on the east side of Volcan Pichincha, c. 2 km W of the centre of Quito, Pichincha Prov., elev. 3000 m, on 24 July 1987. The cliff overhung the nest site, which was about 15 m from the edge of a dirt road. The site was shielded from the road by a bush and several large rocks. There was no nesting material, nor even a depression, the egg being laid on hard, bare dirt. The egg (WFVZ 156,081) contained a half-developed embryo and was immaculate dull white and subelliptical in shape. It measured 28.51 × 20.20 (0.425), and the whole egg weight was 6.0 g. It differs markedly from a series of 6 sets of 2 eggs of this species from Chile in the collection of the WFVZ. All the latter eggs have a buffy-white ground colour, and all but one set (2 eggs) are variously marked with dots and scrawls of dark brown, olive brown, and lilac over their entire surfaces (see Johnson 1967). In addition, Sclater & Salvin (1879) mentioned that a Colombian egg of this species was spotted. The clutch size of this species is also apparently variable, as all the clutches reported by Johnson (1967) contained 2 eggs, Hilty & Brown (1986) mention possible one-egg clutches in Colombia, while Todd & Carriker (1922) reported a 2-egg clutch from the Santa Marta region in Colombia. Our Ecuador set was presumably complete, since the egg was well incubated.

CHESTNUT-COLLARED SWIFT *Cyseloides rutilus brunneitorques*

This species is widely distributed in the neotropics, and nesting has previously been described from Trinidad (Belcher & Smooker 1936, Snow 1962, Collins 1968), Colombia (Niceforo & Olivares 1967), Mexico (Rowley 1966, 1984), and Costa Rica (Marin & Stiles in prep.).

However, there are no previous descriptions of the eggs of this subspecies, nor breeding records for Ecuador, although a *Cypseloides rutilus* nest mentioned by Orton (1871) may have been from Ecuador.

MMA and FCS found a nest on 25 July 1987 at La Merced, 10 km SE of Quito, Pichincha Prov., elev. 2300 m. It was located in the roof of a man-made earthen tunnel c. 6 m above a small stream. It was a half cup-shaped structure made of mosses, liverworts, and with some mud in its base, agreeing in these details with Costa Rican nests found by Marin & Stiles (in prep.). The nest measured 13 × 10 cm wide and was 10 cm deep. It appeared that the mosses and liverworts used in the construction were actually alive, due to the high humidity of the nest site, and that the roots of these plants provided a strong attachment for the nest to the nearly vertical wall of the tunnel. The nest contained a 4–5 day old chick and an infertile egg (WFVZ 156,085), which was white and unmarked, measuring 24.04 × 15.17 (0.133) and long subelliptical in shape. The whole egg weight was 2.4 g. The chick was allowed to fledge, and the empty nest was collected by LFK and NJS on 11 October 1987.

BLACK-TAILED TRAINBEARER *Lesbia victoriae aequatorialis*

LFK and NJS found this species nesting in abundance along a road through a eucalyptus plantation on the slopes of Volcan Pichincha, 2 km W of Quito, Pichincha Prov., elev. 3000 m, 14–16 October 1987. Of 8 nests whose contents were determined 7 contained 2 eggs, and the other only one. The latter nest was found on 14 October with a single egg and had not received another egg by 16 October. Nine eggs collected 15–16 October averaged 13.80 × 8.76 (0.028). They were immaculate white, not glossy, and subelliptical or long subelliptical in shape. All were fresh or contained very small embryos, indicating the onset of egg laying at this locality. The eggs of this species have apparently not been described previously.

The nests were cup-shaped affairs of moss, fine grasses, tiny leaves, and cobwebs, and all had 'hoods' of the same materials, ranging from some that were complete to merely a few wisps of moss. All the nests were lined with fine plant fibres. Six nests averaged 6.8 cm deep and 7.2 cm in diameter, with inner cups 3 cm in diameter and 2.5 cm deep. The hoods averaged 6.5 (5–8) cm deep and 6.4 (4–8) cm wide. All but one of the nests were suspended on hanging masses of vines or grass growing under the overhanging lips of road embankments, with the open side of the cup facing the roadbanks. The single exception was a nest located 2.5 m high in a clump of a lacey, evergreen parasite vine interwoven through the branches of a small eucalyptus tree. This nest was much bulkier than the ones found under the roadbanks, and its hood was so extensive that the nest presented an almost oven-shaped appearance.

This was the only hummingbird found nesting here at this time, although a more detailed study in progress by JCM has indicated that the same type of situation is also extensively used for nesting by several other hummingbird species, including *Metallura tyrianthina* and *Colibri coruscans*, at other times of the year. Presumably, the advent of man and roadbanks has provided much new nesting habitat for hummingbirds both in this area and many others throughout the neotropics. Moore

(1947) mentioned finding a nest of this species with a young bird on the slopes of Volcan Pichincha on 3 April 1947, indicating that the breeding season must either be bimodal, or extend for at least 7 months. Aside from a photograph of a Quito nest in Greenewalt (1960), we can find no other published record of the nesting of *L. victoriae*. The Quito nest is of interest, since it was located 16 ft (4.9 m) high in a tree and does not appear to have had a hood over the cup, as was the case with all the nests we found.

WHITE-EARED JACAMAR *Galbalrhynchus leucotis leucotis*

JCM collected a female of this species (JCM 8704) on 16 September 1987 at Coco, c. 64 km NE of Puerto Francisco Orellana, Napo Prov., elev. 280 m, which contained a fully formed oviduct egg. The egg (WFVZ 156,110) is white, unmarked, not glossy, and short oval in shape, and measures 25.19 × 19.12. This is apparently the first report of an egg of this species.

BLACK-BILLED TREEHUNTER *Thripadectes melanorhynchus melanorhynchus*

A nest of this species was found on 17 October 1987 by NJS and LFK in a wet primary forest area 23 km NE of Archidona, Napo Prov., elev. 1300 m. The nest was a springy pad-like cup of stiff dark brown leafstems of a consistent size and texture. It measured 17 × 13 cm and was located at the enlarged end of a 1 m long tunnel, which sloped slightly upwards in the earthen wall of a 3 m deep game pit. The tunnel was located 1 m up from the floor of the pit, and was 5 cm in diameter. There were several other whole or partial tunnels in the wall, presumably representing former nests or roosting burrows of this species at the same site. The incubating bird (WFVZ 39,185) was flushed from the nest and netted. The nest contained 3 eggs (WFVZ 156,103), 2 of which contained large embryos, while the other was infertile. The eggs were white, unmarked, not glossy, and subelliptical in shape. They measured 29.28 × 20.65 (0.300), 29.32 × 20.43 (0.312), and 28.98 × 21.59 (0.353). This is the first description of the nest and eggs of this species.

The distinctive nest pad of leafstems is virtually identical to 2 Costa Rican nests of *Automolus ochrolaemus*, 2 Costa Rican nests of *Sclerurus guatemalensis*, and one Colombian nest of *Sclerurus albigularis* in the WFVZ collection. Curiously, 2 nests of *Thripadectas rufobrunneus* (including the one collected by Worth (1939) in Panama and another from Costa Rica) in the WFVZ collection are made of rootlets, not leafstems.

BROWN-BACKED CHAT-TYRANT *Ochthoeca fumicolor brunneifrons*

A nest of this species was found by JCM and LFK on 16 October 1987, 2 km W of La Virgen (78°12′W, 00°19′S), elev. 3800 m. One of the birds was collected (WFVZ 42,906), and the nest and eggs (WFVZ 156,105) were taken on 23 October. The nest was a bulky cup of moss and grass lined with *puya* fibres, and was located in a dense vine hanging high over a dirt roadbank 1.5 m off the ground. The nest measured 12 × 11.5 cm wide and was 8 cm deep with an inner cup 5.5 cm in diameter and 4.5 cm deep. The eggs were fresh and were creamy-white with a few scattered spots of rufous-brown and dark brown, mostly on the larger ends. They measured

19.46 × 15.12 (0.115) and 20.24 × 15.74 (0.131) and were short oval and short subelliptical respectively. These details appear to agree with those given for a set of eggs of the nominate race, *O. f. fumicolor* by Sclater & Salvin (1879), apparently the only previous description of the eggs of the species. Vuilleumier & Ewert (1978) described 2 nests found in the Venezuelan paramo, one located in the niche of a bank in a situation apparently similar to the Ecuadorian nest, the other placed in the cavity of an *Espeletia* sp. plant.

OLIVE-CHESTED FLYCATCHER *Myiophobus cryptoxanthus*

MMA and FCS found this seldom-reported flycatcher to be quite common in the vicinity of Tayuntza. A nest found on 2 August 1987 was located in brushy second-growth at the edge of a pasture and placed in a small branch of a sapling c. 1.8 m from the ground. It was a suspended cup, made mostly of mosses and fine plant fibres with bits of moss and decorative dead leaves and fine twigs attached to its outer surface by cobwebs, and was lined with fine plant fibres. Its outer dimensions were 7 cm deep and 9 × 8.5 cm wide, and the inner cup was 4.5 cm in diameter and 5.5 cm deep. The adult female was collected (WFVZ 42,691) along with the nest and 2 eggs (WFVZ 156,088). The eggs measure 16.85 × 12.85 (0.082) and 17.11 × 12.90 (0.084) and are short oval and short subelliptical, respectively. The whole egg weights were 2.55 and 2.6 g. They are identical in appearance to several sets of eggs of the congeneric Bran-coloured Flycatcher *Myiophobus fasciatus* in the WFVZ collection.

BROWN-BELLIED SWALLOW *Notiochelidon murina murina*

We collected several sets of eggs of this species in the mountains east of Quito. A set of 3 fresh eggs (WFVZ 156,084) was taken on 8 September 1987 by FCS and Peggy Sibley at 3 km E of Papallacta, near Rio San Pedro, Napo Prov. Both adults were observed at the nest, and one was collected (WFVZ 42,726). The nest was on a beam under a small bridge c. 2 m over the water. It was made of moss, rootlets and dried grass and was lined with chicken feathers of several colours. The nest seemed unusually large for a swallow and was possibly made originally by some other species. It measured 31 × 15 cm and was 9.5 cm deep. The inner cup was 7 cm in diameter. The 3 eggs were white, unmarked, not glossy, and subelliptical in shape. They measure 18.89 × 13.41 (0.086), 18.79 × 13.81 (0.088), and 18.41 × 13.85 (0.090).

Three other nests (WFVZ 156,106–8) of this species were collected by LFK, JCM and NJS on 23 October 1987 at 2 km W of La Virgen, elev. 3800 m, and several other active nests of the species were examined in the same vicinity on that date. All were located in burrows in dirt roadbanks, 2–5 m off the road and mostly near the tops of the banks. No more than 2 active nests were found in the same section of roadbank. The burrows averaged 10 cm in diameter and most were c. 50 cm deep. The ends of the burrows were enlarged to hold the fairly bulky cup nests, made completely of dried grass and lined with feathers of various species, including *Buteo poecilochrous* and unidentified anatids. The 3 nests averaged 24 × 19 cm in size with inner cups averaging 5.3 cm in diameter. In most instances the incubating birds were removed from the nests by hand. On this date most of the nests contained well incubated eggs or small chicks, but 2 fresh sets of 2 eggs were collected, although only 3 were saved. These are identical in appearance to the eggs taken earlier by FCS, and measure 18.85 × 14.02 (0.081), 19.76 × 13.85 (0.090) and 19.72 × 13.69 (0.082). Nearly all the nests contained 3 eggs or chicks, but one of the sets of 2 was complete, since the bird caught on the nest (42,914) did not contain additional developing ova. The bird caught on the other nest (WFVZ 42,915) did contain a partially formed egg, indicating that the full clutch would have contained 3 eggs.

GREAT THRUSH *Turdus fuscater guindio*

There is surprisingly little published information on the nesting of this species, despite its relative abundance in many Andean localities, and there appears to be no previous description of the eggs of this subspecies. LFK, JCM and NJS found a nest on 23 October 1987 at 11 km W of La Virgen, elev. 3400 m. It was located 4 m high in a dense cluster of leaves at the end of a large lateral limb of a 9 m tree (*Oreopanax* sp.) growing alongside a small creek near the upper limits of the temperate forest belt. The nest was a large bulky cup-shaped affair constructed of coarse sticks on its outer shell and damp weedy and monocot leaves in the inner layers. No mud was found in the walls of the nest, and it was lined with grass. It measured 32 × 21 cm wide and was 12 cm deep; the inner cup was 9.5 cm in diameter and 6 cm deep. One of the pair was seen at the nest, which contained a set of 2 fresh eggs (WFVZ 156,104). The eggs measured 35.97 × 23.60 (0.0543) and 36.30 × 24.20 (0.572) and were long oval in shape. They were bluish-green with bold spots of reddish-brown, cinnamon and (underlying) lilac over their entire surfaces. They are virtually identical in colour and measurements to another egg (WFVZ 151,162) of this species, possibly of the same race, taken in Colombia (no specific locality given) in 1879 by the early collector, Baer. Baer's egg measures 35.49 × 24.15 and is long subelliptical in shape.

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Recent data on the distribution of birds in Guatemala, 2

by Peter W. Wendelken and Robert F. Martin

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Distributional information on Guatemalan birds was organised comprehensively by Land (1970) and updated in part by Wendelken & Martin (1986) following studies of avian frugivory in Guatemala's arid interior (Wendelken & Martin 1987, 1988). In our first report, covering the period 1981–1985, we presented distributional data for 42 species; for 26 of these, our data represented the *f*irst *r*ecord for the species from the *t*ropical *a*rid *i*nterior and was annotated FRTAI (see definition, Wendelken & Martin 1986). Here we present additional data on distribution for 26 species, based primarily on work during 1986 and 1988. We present the first record from Guatemala for one species (*Amazilia violiceps*) and the second record or second known site in Guatemala for 3 others. For 14 species, we present geographical range extensions for regions, departments or locations from which the species has not been reported previously: 3 for Tikal National Park and the Department Petén, 3 for the Motagua Valley portion of the arid interior (FRTAI), 2 for the Department Sacatepéquez, 1 for the Pacific lowland, and

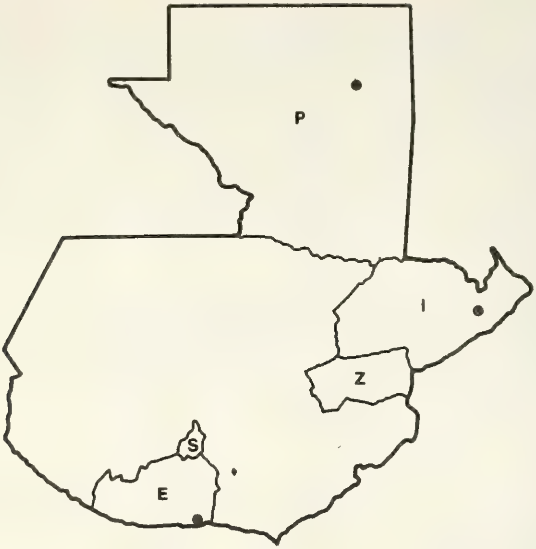

Figure 1. Outline map of Guatemala. E = Dpto. Escuintla; I = Dpto. Izabal; P = Dpto. Petén; S = Dpto. Sacatepéquez; Z = Dpto. Zacapa. Located by dots are: Tikal National Park, Dpto. Petén; El Cimarrón, Dpto. Izabal; and Puerto de Iztapa, Dpto. Escuintla.

7 easternmost records for the country from El Cimarrón, Department Izabal (Fig. 1). El Cimarrón is located at km 269 of the Route to the Atlantic (Ruta al Atlántico), c. 5 km from the town Tenedores and c. 18 km SSW of Puerto Barrios. For 9 species, we present data that supplement those presented in our first report (Wendelken & Martin 1986–herein annotated W&M). Other records are noteworthy for reasons given within the appropriate species accounts. All records are based on observations made using 10 × 50 binoculars. Our conclusions concerning the appropriateness of our records are based primarily on comparisons with Land's species accounts and range maps (1970), Land's earlier distributional papers (1962a, b, 1963), and search of the subsequent literature.

SPECIES ACCOUNTS

GREAT BLUE HERON *Ardea herodias*

22 Feb 1986, one seen along the Motagua River at Santa Cruz, Dpto. Zacapa. (FRTAI: W&M, 9 Mar 1984.)

GREAT EGRET *Casmerodius albus*

22 Feb 1986, one seen along the Motagua R. at Santa Cruz, Dpto. Zacapa. 19 Jan 1988, one seen along the Río Grande de Zacapa at Estanzuela, Dpto. Zacapa. (FRTAI: W&M, 8 Mar & 4 Jun 1984.)

SNOWY EGRET *Egretta thula*

Single birds seen along the Motagua R. at Santa Cruz, Dpto. Zacapa on 22 and 23 Feb 1986. 19 Jan 1988, 4 seen along the Río Grande de Zacapa at Estanzuela, Dpto. Zacapa. FRTAI.

LITTLE BLUE HERON *Egretta caerulea*

19 Feb 1986, one adult and one juvenile (all white) seen along the Río Grande de Zacapa at Estanzuela, Dpto. Zacapa. 2 adults seen at same site, 19 Jan 1988. One adult seen along the Motagua R. at Santa Cruz, Dpto. Zacapa on 22 and 23 Feb 1986. (FRTAI: W&M, 10 Mar & 24 Jul 1984.)

BLACK-SHOULDERED KITE *Elanus caeruleus*

On 21 and 22 Feb 1986, single birds seen soaring at Santa Cruz, Dpto. Zacapa. One seen on 22 Mar 1986 and 3 on 4 Feb 1988 along highway, 10–20 km NE of Quiriguá, Dpto. Izabal. (FRTAI: W&M, 10 Mar 1984 and first records for the Caribbean lowland, Guatemala, W&M, 9 Mar & 3 Sep 1984.)

SNAIL KITE *Rostrhamus sociabilis*

21 Feb 1986, one adult female or immature bird seen in full sunlight flying from a marshy field 2 km SW of Santa Cruz, Dpto. Zacapa. One adult female or immature bird seen and photographed at Santa Cruz on 22 Feb 1986 and 2 (either adult female or immature) seen there next day, one perched in tree and vocalising, the other flying. (FRTAI: W&M, 13 Mar 1984.)

SHARP-SHINNED HAWK *Accipiter striatus*

One observed at close range (20 m) at El Cimarrón, Dpto. Izabal, 19 Mar 1986. Not recorded in Land's study (1963) of the Caribbean lowland. Appears to be the first record for Dpto. Izabal and extends the known range of this species to easternmost Guatemala.

ZONE-TAILED HAWK *Buteo albonotatus*

Rare, possibly resident, in Guatemala; apart from several trade skins of unspecified locality, the only record is from Ocós, at sea level on the Pacific coast (Land 1970). 1 Nov 1985, one in adult plumage seen soaring low, at close range, in excellent light near a permanent stream in Alotenango, Dpto. Sacatepéquez. Yellow cere, long black-and-white banded tail, and 2-tone (black and grey) wings were clearly observed. The first record for the Guatemalan highlands and Dpto. Sacatepéquez.

FERRUGINOUS PYGMY-OWL *Glaucidium brasilianum*

Single birds seen on 20 and 21 Mar 1986 and 2 Feb 1988 at El Cimarrón, Dpto. Izabal. Although recorded previously in western Dpto. Izabal (Land 1963), these are the easternmost records for Guatemala.

GREEN-BREASTED MANGO *Anthracothorax prevostii*

At Estanzuela, Dpto. Zacapa, one female seen on 19 Feb 1986 and 2 females seen next day. At this site in 1988, 2 males were observed on 19 Jan; 4 males and 2 females (one female photographed) on 20 Jan; 2 males and 2 females on 31 Jan and 1 female on 5 Feb. On 17 Jan 1988, one female seen in the foothills of the Sierra de las Minas at 100–150 m elevation above the Motagua Valley floor village of Monte Grande (located c. 4 km west of Santa Cruz, Dpto. Zacapa). The habitat at this foothills site is the same dry scrub forest found on the Motagua Valley floor. (FRTAI: W&M, one female, 8 & 10 Mar 1984 at Santa Cruz, Dpto. Zacapa.)

VIOLET-CROWNED HUMMINGBIRD *Amazilia violiceps*

Not recorded from Guatemala (Land 1970), its previously known southern extent of range was Chiapas, México (Peterson & Chalif 1973). 17 Jan 1988, one male observed when it was both feeding and perched at very close range (to 5 m) in full sunlight for c. 30 min in the southern foothills of the Sierra de las Minas, at c. 100–150 m elevation above the Motagua Valley floor village of Monte Grande. Monte Grande is located c. 4 km west of Santa Cruz, Dpto. Zacapa. The habitat of the site is dry scrub forest (cacti, thorny scrub) and the bird was observed c. 20 m from a wooded canyon. The bill (including upper mandible) was red with a black tip, the crown violet-blue, the tail rufous above, the throat, breast, abdomen and sides a pure white. This is the first record for Guatemala and FRTAI.

TURQUOISE-BROWED MOTMOT *Eumomota superciliosa*

El Cimarrón, Dpto. Izabal, one seen along the Río Tenedores near a vertical dirt bank, 19 Mar 1986. 22 Mar 1986, 2 pairs and a single bird seen along the banks of the Río Tenedores (one bird photographed). 4 Feb 1988, 3 seen at the same site. Although previously recorded in western Dpto. Izabal (Land 1970), these are the easternmost records for Guatemala.

PALTRY TYRANNULET *Zimmerius vilissimus*

El Cimarrón, Dpto. Izabal, single birds seen on 22 Mar 1986 & 3 Feb 1988. Although previously recorded in western Dpto. Izabal (Land 1963), these are the easternmost records for Guatemala.

OLIVE-SIDED FLYCATCHER *Contopus borealis*

16 Jan 1986, one seen on the lower northern slopes of Volcán del Agua, 8 km south of Antigua, Dpto. Sacatepéquez. W&M (1986) extended the earliest calendar date from 7 Mar to 28 Jan; latest calendar dates are 16 Dec (Land 1970) and 30 Dec (Brose *et al.* 1980). Present record suggests possible winter resident, rather than migrant, status.

BLACK PHOEBE *Sayornis nigricans*

Recorded in the Caribbean lowland from northwestern and western Dpto. Izabal (Land 1970). One seen on 2 Feb 1988 and 2 on 4 Feb 1988 along the Río Tenedores at El Cimarrón, Dpto. Izabal. These are the easternmost records for Guatemala.

TREE SWALLOW *Tachycineta bicolor*

Four observed on 28 Jan 1988 and 2 next day flying continuously over artificial ponds adjacent to headquarters at Tikal National Park, Dpto. Petén. First record for Tikal Nat. Pk. and Dpto. Petén.

MANGROVE SWALLOW *Tachycineta albilinea*

Río Grande de Zacapa at Estanzuela, Dpto. Zacapa, one seen on 19 Feb 1986, 4 on 19 Jan 1988 and one on 31 Jan 1988. Motagua R. at Santa Cruz, Dpto. Zacapa, 2 on 22 Feb 1986 and one next day. (FRTAI: W&M, Mar–Jul 1984.)

CLIFF SWALLOW *Hirundo pyrrhonota*

One seen repeatedly in a mixed flock of swallows, flying over artificial ponds adjacent to headquarters at Tikal National Park, Dpto. Petén, 28 and 29 Jan 1988. First record for Tikal Nat. Pk. and Dpto. Petén.

NORTHERN PARULA *Parula americana*

One female seen on 26 Jan 1988 in Tikal Nat. Pk. Partial white eye ring and absence of black mask noted clearly. First record for Tikal Nat. Pk. and Dpto. Petén.

WORM-EATING WARBLER *Helmitheros vermivorus*

Recorded from near sea level to 1500 m in Guatemala (Land 1970). 3 Oct 1985, one seen at c. 2700 m on Volcán del Agua, Dpto. Sacatepéquez.

WHITE-VENTED EUPHONIA *Euphonia minuta*

Resident and rare, recorded in Guatemala only at Cobán, Dpto. Alta Verapaz (Salvin & Godman 1879: 259, cited *in* Land 1970). El Cimarrón, Dpto. Izabal, in 2–3 m fruiting shrubs in an overgrown pasture adjacent to the Río Tenedores, single males seen on 19 and 22 Mar 1986 and 2 males and one female on 2 Feb 1988. Observed at close range in sun and confirmed by photographs, the posterior abdomen, vent and undertail coverts of the males were completely white. The female had a greyish throat and whitish abdomen. On 3 Feb 1988, a male seen in a low (6 m) fruiting tree at forest edge c. 2 km upstream from previous site. First records for Dpto. Izabal and Caribbean lowland of Guatemala.

WESTERN TANAGER *Piranga ludoviciana*

20 Feb 1986, one male seen at Estanzuela, Dpto. Zacapa. Single birds seen at this site, 19 and 31 Jan 1988. FRTAI. 19 Mar 1986, one male seen at El Cimarrón, Dpto. Izabal. Although recorded in the Caribbean lowland at Panzos, Dpto. Alta Verapaz (Land 1963), and apparently from western Dpto. Izabal (Land 1970), this is the easternmost record for Guatemala.

GRAYISH SALTATOR *Saltator coerulescens*

23 Feb 1986, one adult seen at Santa Cruz, Dpto. Izabal. (FRTAI: W&M, Apr–Jun 1984.)

GRASSLAND YELLOW-FINCH *Sicalis luteola*

Probably resident; the only previous record was from Dueñas, Dpto. Sacatepéquez, in the 19th Century (Land 1970). On 23 Jan 1988, one male seen along the road between San Juan del Obispo and Santa María de Jesús, 9 km south of Antigua, Dpto. Sacatepéquez.

RED-WINGED BLACKBIRD *Agelaius phoeniceus*

19 Feb 1986, various males heard vocalising near the Río Grande de Zacapa at Estanzuela, Dpto. Zacapa. (FRTAI: W&M, Apr–Jul 1984, Santa Cruz, Dpto. Zacapa.)

MELODIOUS BLACKBIRD *Dives dives*

Observed many times in the vicinity of the villages Ciudad Vieja, San Pedro and San Juan del Obispo, 4–6 km south of Antigua, Dpto. Sacatepéquez: 8 & 29 Nov 1981; 3, 6 & 25 Dec 1981; 3, 10 & 31 Jan 1982; 15 & 19 Mar 1985; 8 & 11 Dec 1985; and 2 Jan 1986. Seen at Dueñas

(c. 12 km WSW of Antigua), 18 Aug & 1 Dec 1985, at Alotenango (c. 13 km SW of Antigua), 27 Nov 1985, and at Santa María de Jesús (c. 10 km SSE of Antigua), 23 Jan 1988. These are the first records for Dpto. Sacatepéquez. On 22 Nov 1981, observed along the Pacific coast at Puerto de Iztapa, the first record for Dpto. Escuintla and the Pacific lowland of Guatemala.

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The mangrove reed warblers of the Red Sea and Gulf of Aden coasts, with description of a new subspecies of the African Reed Warbler *Acrocephalus baeticatus*

by J. S. Ash, D. J. Pearson, G. Nikolaus and P. R. Colston

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On 26 January 1952 K. D. Smith collected what he believed to be a Reed Warbler *Acrocephalus scirpaceus* from a population singing in coastal mangroves at Zula (15°15'N, 39°42'E), (Eritrea), Ethiopia, and which, to judge from the enlarged testes of the specimen, was assumed to be breeding there. On the basis of its rather short and rounded wing this bird was subsequently re-identified as a Blyth's Reed Warbler *A. dumetorum* (Williamson 1963, Smith 1964). The specimen was further discussed by Fry *et al.* (1974), and together with birds from Senegal and Lake Chad and a March specimen from Tibesti, it was considered to be representative of populations intermediate between the African Reed Warbler *A. baeticatus cinnamomeus* and Palaearctic *A. dumetorum*.

The Lake Chad birds were placed in a new taxon *A. baeticatus hopsoni* (Fry *et al.* 1974) and those of Senegal were subsequently named *A. b. guiersi* (Colston & Morel 1982). The Tibesti bird, which we have re-examined, appears to be a short-winged *A. scirpaceus*.

The taxonomy and affinities of the African Reed Warbler have been a subject of some controversy over the past 15 years. Fry *et al.* (1974) and Fry & Ferguson-Lees (1977) argued that *A. baeticatus*, or at least some of its forms, should be treated as conspecific with *A. dumetorum*. This has been rejected by, among others, Devillers & Dowsett-Lemaire (1978) and Dowsett-Lemaire & Dowsett (1987), who stress instead the close vocal and other similarities of *A. baeticatus* and *A. scirpaceus*. In fact, the last-named authors suggest that *baeticatus* and *scirpaceus* are conspecific. Whilst we agree that these 2 are closely related, we adhere to the 2 specific names in this paper. Clancey (1975) proposed that the smaller, more rufous coloured birds of inland eastern and central Africa be treated as a separate species *A. cinnamomeus*, but the justification for this is questionable (*vide* e.g. Dowsett-Lemaire & Dowsett 1987) and we here treat *cinnamomeus* as a race of *A. baeticatus*.

Populations referrable to *cinnamomeus* which extended the known range of this race north and northeast were found in Niger (Devillers & Dowsett-Lemaire 1978), central Ethiopia (Ash 1973) and Somalia (Ash in press), while birds found by Wilkinson & Aidley (1983) in northern Nigeria were considered to be intermediate between *cinnamomeus* and *hopsoni*.

Meanwhile there have also been further discoveries of birds resembling the Zula specimen, all from mangroves on the coasts of Ethiopia (Eritrea), Sudan, Somalia, Saudi Arabia, and North Yemen (for all known records of *A. baeticatus* from Ethiopia, Somalia, coastal Sudan and the Arabian peninsula see Appendix 1). In December 1972 J.S.A. found birds singing on Scek Said Is (15°36'N, 39°28'E), Ethiopia, where Brother Edmund Johnson netted 2 examples and collected one specimen on 7 January 1976 (Ash 1977, Johnson 1976). Prompted by these findings G.N. searched for and found singing birds during early March of the same year near Suakin (19°05'N, 37°20'E) on the Sudan coast, and collected a series of 10 moderately worn birds, 8 of which are now housed at the Alexander Koenig Museum, Bonn, and 2, together with the Scek Said bird, at the Smithsonian Institution, Washington, D.C. G.N. collected 4 more birds at Suakin in early August 1981, 2 in fresh plumage being considered to be young birds, whilst one worn and one moulting specimen were clearly adults. Three of these 4 birds were quite fat. These 4, together with 3 more specimens taken by G.N. in March 1983, and 2 nests collected in

1982 and 1983 (Appendix 2) are housed at Stuttgart Museum (Nikolaus 1984, 1987; Nikolaus & Backhurst 1982).

In Somalia, Clarke (1985) collected, but did not preserve, an *Acrocephalus* in mangroves at Zeila (11°21′N, 43°28′E) on 20 May 1958, which was almost certainly the same taxon as the birds from Alula (see below). On 10 May 1979 at least 2 birds were heard by J.S.A. singing in mangroves at Saad-al-Din Is (11°27′N, 43°28′E) which sounded just like the Scek Said Is birds in Ethiopia (Ash 1983). Then in early May 1980 similar birds were singing in mangroves at Alula (11°58′N, 50°15′E). Two adults were collected and confirmed as the typical mangrove form (J. S. Ash & J. E. Miskell). A further mangrove bird was seen by J.S.A. nearby at Garas Wadi (11°16′N, 49°02′E) in the same month.

Two specimens, inseparable from those from the Sudan coast, were collected by B. S. Meadows from birds singing in mangroves at Yanbu Al-Sinaiyah (23°09′N, 38°02′E), 350 km north of Jiddah, Saudi Arabia, on 17 March 1986, the 2 skins being now in the British Museum (Natural History) (BMNH), Tring, U.K. In 1987 an adult and juvenile were netted in mangroves much further south, at Shuqaia (17°45′N, 41°55′E), by M. K. Jennings and H. Felemban, who also saw others with newly fledged juveniles in mangroves nearby. One seen well in mangroves by M. K. Evans at Al'Urj (15°06′N, 42°52′E) in North Yemen on 10 June 1986 agreed with the description of the mangrove birds on the west side of the Red Sea.

These Red Sea mangrove reed warblers certainly appear to be closely allied to *A. baeticatus*, and their song is of a typical *baeticatus/scirpaceus* character. However, they appear to be more distinctive than any of the other *baeticatus* populations of northern Africa. In wing structure they are very similar to both *A. dumetorum* and *A. agricola*; in particular, many key out as *agricola* and even one as experienced as K. Williamson was led to believe that the Zula bird was actually *dumetorum*. Plumage colouration is incorrect however for both *dumetorum* and *agricola*, bill shape is wrong for *agricola* (which also has a relatively longer tail) and, most significantly, the song is very different from that of *dumetorum*. Both *agricola* and *dumetorum* are probably monotypic.

We describe the mangrove taxon here as a race of *baeticatus*:

Acrocephalus baeticatus avicenniae, subsp. nov.

Type. Male adult with testes enlarged, Zula (15°15′N, 39°42′E), Eritrea, Ethiopia, 26 January 1952. Collected in a mangrove swamp near Zula by K. D. Smith. In the collection of the British Museum (Natural History), Tring. Registration number 1952–25–23.

Description and diagnosis. Differs from *A. b. cinnamomeus* in being olive-brown above, with rusty tinge confined to rump and upper tail coverts, but lacking on wing feathers; slightly paler on head and mantle. Worn birds are paler with a greyish cast above. Supercilium creamy white. Almost uniform creamy white below with only a slight buff suffusion on the flanks and thighs, in contrast to the deep rich buff on the breast, flanks and under tail coverts typical of *A. b. cinnamomeus*. Under wing coverts creamy white. Wing usually longer than in *cinnamomeus*

TABLE 1

Measurements (in mm) of 2 races of *Acrocephalus baeticatus*

		n	*A. b. avicenniae*	n	*A. b. cinnamomeus**
Wing	♂	(10)	57–61 (59.0 ± 1.2)	(14)	53–56 (54.7 ± 1.2)
	♀	(11)	55–61 (58.2 ± 0.9)	(5)	53–56 (54.8 ± 1.1)
Tail	♂	(8)	47–50 (47.0 ± 1.4)	(10)	43–47 (44.7 ± 1.5)
	♀	(9)	44–48 (46.1 ± 1.3)	(3)	43, 44, 45
Tarsus	♂	(8)	20–21.5 (20.9 ± 0.5)	(10)	21.5–23 (22.1 ± 0.5)
	♀	(9)	20–21.5 (20.7 ± 0.5)	(3)	21, 21, 22
Bill (skull)	♂	(8)	15.5–17 (16.4 ± 0.6)	(14)	15.5–17.5 (16.7 ± 0.6)
	♀	(9)	15.5–17 (16.1 ± 0.5)	(5)	16.5–17.0 (16.8 ± 0.3)
2nd primary tip		(19)	Most = tips p6/7 (one = 7/8; two = 5/6)	(18)	Most = tips p7/9 (two = 9/10; none above p7)
10th primary shortfall		(19)	7.5–10 (9.3 ± 0.5)	(16)	6–9 (7.3 ± 0.9)
Hind claw		(6)	5–6	(15)	6.5–7.5
Weight		(20)	7–10.5 g (8.0 ± 1.1)	(17)	6.2–10.6 g (8.0 ± 1.0)

*These include all the BMNH specimens from Sudan and Chad (10) and Tanzania (4, of which 2 are labelled wrongly as *suahelicus*), plus the Smithsonian specimens from Ethiopia (4) and Somalia (3).

and rather more pointed (greater tenth primary shortfall, and the second primary falling nearer the wing tip); tarsus shorter (Table 1).

Distribution. Mangroves on the Red Sea coasts of Ethiopia (Eritrea), Sudan, Saudi Arabia, North Yemen, and the Gulf of Aden coast of Somalia.

Measurements (in mm). *Type*: wing flattened 59, tail 48, tarsus 21, bill (culmen to skull) 16.5, hind claw 5; measured ascendantly, 2nd primary falls between 6th and 7th; 10th primary shortfall (distance from tip of 10th primary to wingtip on closed wing) 9 mm. *Other specimens*: for a series of 19 (10♂♂, 9♀♀), measurements are compared with those of NE African *cinnamomeus* in Table 1.

Museum material examined (in addition to the type). Two Saudi Arabian specimens at BMNH (Reg. Nos. 1986–1–1 and 1986–1–2); 5 specimens – one from Scek Said Is and 2 each from Suakin and Alula – on loan from the Smithsonian Institution (Reg. Nos. AMNH 569770, 570439, 570440, 571274, 571366); 8 skins in the Alexander Koenig Museum, Bonn; and 5 skins in Stuttgart Museum, together with all holdings of *A. baeticatus* at BMNH and 7 *A. b. cinnamomeus* collected by J.S.A. in central Ethiopia and Somalia on loan from the Smithsonian Institution.

Breeding and moult. Records of song all fall between January and May, which presumably includes the breeding season. This is borne out by the state of gonadal development, as well developed testes were present in one male at Zula in January and in 4 at Suakin in March; 4 females were in breeding condition at Suakin in March, and one nearly so at Alula in May – the latter probably regressing. Moult would seem to occur between about July and November, for the two January specimens, though fairly fresh, appear to have moulted at least 2 months previously; March birds are more faded and moderately worn, May birds are very worn, while of the 2 August adults, one was moulting and the other was very worn. Whereas all birds caught at Suakin in March were lean, 3 of the 4 caught in August were rated Fat 3 (*vide* Pearson & Backhurst 1976). This suggests that the population migrated after breeding, and in fact no birds have been recorded on the Sudan coast during September–November.

Etymology. The bird is named after *Avicennia maritima*, the predominant species in the mangrove habitat in which it has been found.

Comparison with other forms of A. baeticatus *and* A. scirpaceus. *A. b. avicenniae* is paler above than other races of *A. baeticatus*, including *hallae* from southwestern Africa and *guiersi* from Senegal. *A. b. guiersi* has a similar restriction of warm colouration above, but is slightly darker brown on the head and mantle. Although the type was originally identified as a Reed Warbler *A. s. scirpaceus*, the upperparts of *avicenniae* in fact closely match those of the eastern *A. s. fuscus*. The creamy wash below and the very pale flanks differentiate *avicenniae* from other races of *baeticatus*. The other African Reed Warbler known to frequent mangroves, perhaps exclusively, is *A. b. suahelicus* of the East African coast. This is a rather larger bird than *avicenniae* with a bigger bill, and is much darker and more richly coloured above and below.

The wing of *avicenniae* is longer and less blunt than that of central and eastern African *cinnamomeus*. This is a tendency also shown by West African *guiersi* and *hopsoni* on the one hand, and by southern African nominate *baeticatus* and *hallae*, which are known to migrate, on the other. Rarely, in any of these African Reed Warblers, however, is the more pointed wingtip of *A. scirpaceus* approached. The bill of *avicenniae* is relatively small; the rather slender looking legs and toes and small claws are more apparent in the live bird in the hand than can be demonstrated by the measurements obtained. The different foot structure is presumably a reflection of the bird's mangrove habitat; most other races of *baeticatus* inhabit reeds, swamps and tall grasses to a large extent. *A. b. cinnamomeus* in southern Somalia is confined to the lowest parts of very dense and high stands of *Typha* growing in water.

The pallid underparts, small feet and general structure and wing formula suggest in *avicenniae* an approach greater than that in other African Reed Warbler races to the Olivaceous Warbler *Hippolais pallida*. However, its rufous tinged rump, its short first primary, more rounded tail, and a lack of tarsal scaling, as well as its song, indicate its affinities with *baeticatus* and *scirpaceus*. Whether it warrants separate status as an endemic mangrove species will be determined by further observations of its behaviour and breeding, and song recordings.

Thus, in summary, we recognise *A. baeticatus* as a polytypic species in Africa and Arabia, which does not seem to have a long-distance migration, has very close affinities with *A. scirpaceus*, and has a fragmented distribution with a number of local populations, some of which are distinct.

The discovery of *A. b. avicenniae* on the eastern coast of the Red Sea adds the species to the avifauna of Saudi Arabia and North Yemen, which are sites just outside the border of the Palaearctic as defined by Cramp (1988).

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Appendix 1. Records of *Acrocephalus baeticatus* in Ethiopia, Somalia, the Sudan, Saudi Arabia and North Yemen

Ref.	Date	Locality	Numbers	Reference	Museum	Subsp.
ETHIOPIA						
a*	iv.1870	Massawa, Eritrea	Not rare	Antinori & Salvadori 1873	G?	b
b	26.i.1952	Zula, Eritrea	Ad ♂ coll.	Smith 1964	BM	b
c	22.iv.1970	Bahadu	♀ coll	Ash 1973	BM	a
d	13.iii.1971	Koka	♂ coll.	Ash 1973	SI	a
e	3 & 7.v.1971	Bahadu	One netted	Ash 1973	—	a
f	6.v.1971	Bahadu	One netted	Ash 1973	—	a
g	23.xi.1971	Bahadu	One netted	Ash 1973	—	a
h	27.iii. & 4.iv.1972	Koka	One netted	Ash 1973	—	a
i	2.iv.1972	Koka	One netted	Ash 1973	—	a
j	25.xii.1972	Gambela	One coll.	Kumerloeve 1974	Bonn	?
k	28.xii.1972	Scek Said Is	5+ seen	Ash 1977	—	b
l	25–26.iii.1974	32 km NE of Bonga	2 netted	Ash 1977 (Nikolaus)	?	a
m	20.iv.1975	Gambela	1 netted	Ash 1977	SI	a
n	1–5.v.1975	Tendaho	1 seen	A. Vittery *in litt.*	—	?
o	2.v.1975	3 km ex Tendaho	1 seen	A. Vittery *in litt.*	—	?
p	28.v.1975	Koka	One netted	Ash 1977	—	a
q	20.ix.1975	Koka	One netted	Ash pers. obs.	—	a
r	22.ix.1975	Koka	One netted	Ash pers. obs.	—	a
s	7.i.1976	Scek Said Is	Two netted	Ash 1977 (E. Johnson)	SI (1)	b
t	2.iv.1976	Gilo River	Netted	Dr S. J. Tyler *in litt*	—	a
u	28.iii–13.iv.1976	Ubela River	Netted	Dr S. J. Tyler *in litt*	—	a
v	21.iv.1976	Koka	One netted	Ash pers. obs.	SI	a
w	15.ii.1977	Aseita	♂ coll.	Ash pers. obs.	SI	a
SOMALIA						
a	10.i.1900	Zeila	Ad ♂ coll.	Erlanger 1905; see Hilgert 1908	?	?
b	29.v.1958	Zeila	One coll.	Clarke 1985	—	b
c	31.iii.1979	Dannow	♀ coll.	Ash pers. obs.	BM	a
d	1.iv.1979	Dannow	3♂♂ coll.	Ash pers. obs.	BM	a
e	10.v.1979	Saad-al-Din Is	2 seen	Ash 1983	—	b
f	2.v.1980	Alula	6 seen	Ash & Miskell pers. obs.	—	b
g	3.v.1980	Alula	Common	Ash & Miskell pers. obs.	—	b
h	5.v.1980	Alula	2♀♀ coll.	Ash & Miskell pers. obs.	SI	b
i	8.v.1980	Garas wadi	3 seen	Ash pers. obs.	—	b
SUDAN (coastal records only)						
a	10 & 11.iii.1976	Suakin	8 coll.	Nikolaus pers. obs.	Bonn	b
b	10 & 11.iii.1976	Suakin	2 coll.	Nikolaus pers. obs.	SI	b
c	viii.1981	Suakin	4 coll.	Nikolaus pers. obs.	St.	b
d	iii.1983	Suakin	3 coll.	Nikolaus pers. obs.	St.	b
SAUDI ARABIA						
a	17.iii.1986	Yanbu Al-Sinaiyah	♂♀ coll.	B. S. Meadows pers. obs.	BM	b
b	12.vii.1987	20 km NW of Shuqaia	2 netted	M. C. Jennings pers. obs.	—	b
c	12.vii.1987	15 km NW of Shuqaia	Sev. seen	M. C. Jennings pers. obs.	—	b
NORTH YEMEN						
a	10.vi.1986	1.5 km south of Al'Urj	One seen	M. K. Evans *in litt.*	—	b

Notes. BM = British Museum (Natural History); SI = Smithsonian Institution; Bonn = Alexander Koenig Museum, Bonn; St. = Stuttgart Museum; G = Genoa Museum. *Subsp. refs:* a = *A. b. cinnamomeus*; b = *A. b. avicenniae*. The following identifications are presumed (first column) Ethiopia a; Somalia b,e,i; Saudi Arabia b,c; North Yemen a.

*This was an *Acrocephalus* found with others ('non è raro') in mangroves, and remained unidentified. It was very probably this species. Coordinates for those localities not included in the text are given in Appendix 2.

Appendix 2. Coordinates for localities in Appendix 1 which are not given in the text

Aseita	Somalia	10°27′N,33°42′E	Gilo River	Ethiopia	07°45′N,33°37′E
Bahadu	Ethiopia	10°05′N,40°37′E	Koka	Ethiopia	08°27′N,39°06′E
Bonga	Ethiopia	08°12′N,34°58′E	Massawa	Ethiopia	15°36′N,39°29′E
Dannow	Somalia	01°44′N,44°32′E	Tendaho	Ethiopia	11°41′N,40°57′E
Gambela	Ethiopia	08°15′N,34°38′E	Ubela River	Ethiopia	07°55′N,33°57′E
Garas wadi	Somalia	11°16′N,49°02′E			

Appendix 3. Description of nests of *Acrocephalus baeticatus avicenniae* collected by G. Nikolaus in the Sudan

1. Suakin, Sudan. July 1982. Empty nest in fork of mangrove, 20 cm above the sea, built entirely of seaweed.
2. Suakin, Sudan. 17 August 1983. Empty nest in fork of mangrove, 1.5 m above the sea, built mainly of feathers and seaweed. It was close to a mixed breeding colony of Spoonbills *Platalea leucorodia* and Reef Herons *Egretta gularis*.

Measurements (mm)

	Nest 1	Nest 2
External diameter of nest	50	60
Internal diameter of cup	35	40
Internal depth of cup	30	25
External depth of nest	50	50

Both nests are deposited in the Stuttgart Museum.

The status of *Anthus caffer mzimbaensis* Benson, 1955

by P. A. Clancey

Received 19 April 1988

The small Afrotropical Bushveld or Little Tawny Pipit *Anthus caffer* Sundevall, 1850: Rustenburg district, western Transvaal, of lightly wooded grassland savanna is a highly vicariant species, which ranges locally from southern Ethiopia, south through the eastern interior of the continent to reach southern Mozambique, Swaziland and Zululand in the southeast, with an isolate population in western Angola. White, in Peters (1960), admitted 4 subspecies, these, apart from the nominate race, being: *A. c. mzimbaensis* Benson 1955: Edingeni, Mzimba, Malaŵi; *A. c. blayneyi* van Someren 1919: Olgerei, Kenya; and *A. c. australoabyssinicus* Benson 1942: Yavello, southern Ethiopia. Since the appearance of this arrangement, *A. c. traylori* Clancey, 1964: Bela Vista, southern Mozambique, has been described.

Geographically related variation in *A. caffer* affects levels of reddish brown and buffiness in the plumage, and general size, which latter seems not to be altitudinally correlated. Small-sized birds, with wings in males 72 mm and below, occur from southern Ethiopia south to southern Kenya and northern Tanzania, and others almost as short-winged are present in the lowlands of the southeast of the range (southern Mozambique and adjacent territories) with wings in males 74.5 mm and below. Interposed between these short-winged groups of populations are much larger-sized elements with wings in males above 74 and attaining 80 mm in length. Variation in colouration is disposed somewhat differently to that of overall size, with birds with the dorsal surfaces strongly reddish sandy or ochraceous and the underside (ground colour of breast and flanks) warm buff present from southern Ethiopia, south to northern Tanzania (to c. 5°S) and northeastern Zambia, re-appearing further south in the Transvaal and western Swaziland. This sequence of populations with the undersides strongly tinged with buff is broken by elements with the upper-parts duller, less saturated, the light streaking, especially over the hind neck, paler, and with the throat and lower underside white, the flanks without any buff. Birds exhibiting these characters range from the plateau of Zimbabwe west to northeastern Botswana and are present again in the southeastern coastal lowlands, mainly to the south of the lower Limpopo R. in Mozambique. It has not been possible to fit the putative characters of the western Angolan isolate into this mosaic of size and colour variation, but as material from Angola is generally treated as applicable to the nominate race, described from the western Transvaal, it clearly belongs to the ventrally buffish group of populations.

A. c. mzimbaensis was described on a single adult male in the Transvaal Museum collection taken near Mzimba, western Malaŵi, near the Zambian border, on 30 September 1940, by C. W. Benson, since when no further specimens have been collected in Malaŵi; consequently it must now be conceded that it is extremely unlikely that the name *mzimbaensis* represents a viable local breeding population. While generally believed to be sedentary, this pipit is credited by some as being either nomadic or even as having regular, seasonal movements (*vide* Britton *et al.* 1980), and evidence gathered from specimens examined during the course of the present study substantiates this view. The characters advanced by Benson in the original description of *mzimbaensis* are those of a population of larger size than *A. c. caffer* – longer wing (77) and tail (57.5 mm) – and the pure white nature of the abdominal surface, without any buff (on the flanks). The very long tail-length of the type of *mzimbaensis* is exceptional, the longest measurement being normally 54.5/55 mm, and is probably due to the rectrices having been ineptly cut during preparation. Otherwise, the criteria are not diagnostic, since comparable specimens have been taken at Mwekera, near Kitwe, Zambia (at 12°49′S, 28°23′E) and in the population continuum from the plateau of Zimbabwe, west to northeastern Botswana. On the evidence available, it is postulated that *mzimbaensis* is based on a migrant, probably from the Zimbabwean breeding population.

On the basis of 4 specimens from the Bulawayo collection, Benson *et al.* (1971) recognised 2 subspecies of *A. caffer* from extreme western Malaŵi and eastern Zambia (east of 28°E), *A. c. mzimbaensis* of Malaŵi being separated from nominate *A. caffer* by the ecologically unsuitable Luangwa Valley. The 4 Zambian skins are an uneven lot. The single Mwekera specimen, shot on 4 September 1961, has already been alluded to. It does not resemble Transvaal topotypes of *A. c. caffer*, being duller and less red above and is very whitish below, without buff on the flanks and the breast streaking is on the whole fine; but on the other hand it can be matched with numerous specimens from western Zimbabwe and is assuredly a migrant from south of the Zambezi R. A single female from Chilanga (23 August 1957) is very worn and bleached, but again resembles comparable eroded Zimbabwe/Botswana material. The remaining 2 Zambian specimens are a freshly moulted female obtained 71 miles from Kasama–Mpika, dated 22 January 1955, and a juvenile from the same general area (56 miles from Mpika–Kasama) taken on 8 March 1954. These 2 specimens are more significant, since the freshly moulted female exhibits characters linking it with the East African *A. c. blayneyi* rather than *A. c. caffer* (*pace* Benson *et al.*), these being the less heavily streaked dorsum, duller, less reddish brown rump, brighter buff to the underside and markedly finer and paler breast streaking. The Zambian birds are, however, not *blayneyi*, their wing-length being too long: 2 females (one a juvenile) 72 and 73, *versus* 65–71 mm. van Someren (1919), in the original description of *A. c. blayneyi*, gave the wings of both sexes as 65–70 mm. In the British Museum (Nat. Hist.) series of *A. c. australoabyssinicus* of southern Ethiopia, 4 ♂♂ have wings 69.5–71 (70.1) (SD 0.62), 3 ♀♀ 66–69 (67.1) mm. The series of *blayneyi* in the same collection, is, unfortunately, very limited, the wings of 3 ♂♀ being 66.5–71. This latter sample includes an atypical example with the dorsal surface showing broad dark brown shaft-streaking, the breast densely streaked with dark brown and the belly whitish, setting it apart from both typical *blayneyi* and the southern Ethiopian race. This skin was taken at Lomorn, 18 miles southwest of Loliondo, in the Serengeti region of northern Tanzania. Its status in uncertain.

Returning to the Zambian specimens from Kasama–Mpika, these are presumably part of an undescribed subspecies, which may also comprise the remote Angolan isolate. Angolan specimens are not in the collection at Tring, but Mrs Mary LeCroy of the Department of Ornithology of the American Museum of Natural History, has kindly furnished wing- and tail-length data of the examples from Angola in their collection, as follows: wings of 2 males 72 and 74, 4 females 71.5–75 (sexing of one ♀ with a wing of 75 questionable), tails of males and females (mainly worn or in moult) 50–54 mm. Most patterns of variation exhibited by moderately or highly polytypic species ranging widely west to east south of the Lower Guinea Forest are unbroken, or vary only slightly terminally, from Angola, east to northern Zambia, Shaba (Zaïre) and southwestern Tanzania; linkage of the undescribed Zambian element of *A. caffer* with the Angolan isolate would be in concordance with this general principle.

It can be concluded from the above discussion that *A. c. mzimbaensis* of 1955 does not represent a subspecies known only from its type-locality, its type a migrant or nomad example agreeing in its critical features with birds breeding in a continuum to the south of the Zambezi from the interior plateau of Zimbabwe to Botswana. As these latter breeding birds constitute a discrete race, differing from *A. c. caffer* of the Transvaal and country to the southeast in being less reddish above and much whiter below, Benson's *mzimbaensis* may be used for it.

Six groupings of populations merit treatment as subspecies, the 4 present south of 10°S as defined below, and the 2 northern forms, *A. c. blayneyi* and *A. c. australoabyssinicus*, which range from southern Ethiopia to northern Tanzania, but only weakly differentiated from one another and needing further study.

Anthus caffer caffer Sundevall, 1850: Rustenburg district, western Transvaal

Upper parts dark reddish olive-brown, the feathers edged deep ochraceous buff; rump plain dark Tawny-Olive (Ridgway 1912). Below, with breast warm buff, streaked with brownish black; rest of venter buffy white, the flanks washed warm buff. Size large.

Wings of 13 ♂♂ 74–77.5 (75.4) (SD 1.01), tails (of 5) 51.5–52 (51.5) (SD 0.86); wings of 8 ♀♀ 71.5–75 (73.3) (SD 1.06), tails (of 5) 48–52.5 (50.6) (SD 1.71) mm.

Range. Southeastern Botswana, southwestern Zimbabwe (? as migrants), the bushveld regions of the Transvaal highveld, western Swaziland and adjacent northern Natal (Itala). Intergrades to the east of its range with *A. c. traylori*. Some winter to north of range given.

Remarks. One or two specimens from farms in the Bulawayo district of southwestern Zimbabwe and from Selukwe dated May–August agree with the present subspecies in their ventral characters, and appear to be seasonal visitors from south of the Limpopo R, which breed November–February. Other Bulawayo farms material is of *mzimbaensis*. A single freshly moulted ♂ from Darwendale (17°49′S, 30°36′E), dated 11 May is also clearly a migrant example of nominate *caffer*.

Anthus caffer traylori Clancey, 1964: Bela Vista, southern Sul do Save, Mozambique.

Markedly less reddish above than *A. c. caffer*, the light streaking on the hind neck paler and the rump more olivaceous and markedly streaked with dark brown. Below wholly whiter, the ground to the breast pale ochraceous-buff, and flanks white, not buff. Size smaller.

Wings of 14 ♂♂ 70–74.5 (72.0) (SD 1.18), tails (of 10) 46–50 (48.4) (SD 1.34); wings of 11 ♀♀ 68.5–72 (70.4) (SD 1.13), tails (of 8) 47–49 (47.5) (SD 0.82) mm.

Range. Coastal plain of southern Mozambique south of the Save R, but known mainly from south of the lower Limpopo R. Extends to the Kruger National Park in the eastern Transvaal lowveld and to northeastern Zululand to the east of the Lebombo Mtns.

Anthus caffer mzimbaensis Benson 1955: Edingeni, Mzimba, Malaŵi

Similar in colour to *A. c. traylori* but much larger in size. Wings of 7 ♂♂ 74.5–80 (77.0) (SD 1.54), tails (of 10) 51.5–55 (52.6) (SD 1.26); wings of 16 ♀♀ 71–75 (73.2) (SD 1.12), tails (of 12) 48.5–54 (50.8) (SD 1.60) mm.

Range. Northern Botswana from just east of the swamp region, east to the interior plateau of Zimbabwe (see map in Irwin 1981). Some individuals range north of the Zambezi R during August and September, then reaching northern Zambia and western Malaŵi.

Remarks. The lighter dorsal colouration and much whiter underside of *mzimbaensis* are analogous to the phenotypic character states of several xeric salt pan races of southern African larks (Alaudidae) and other pipit species, suggesting an arid region origin and recent spread to the country to the east of the South West Arid District.

Anthus caffer ?subsp. nov.

Similar to *A. c. blayneyi* but differs in being larger. Compared with nominate *caffer* less darkly and heavily streaked above. Ventrally, the buff of the breast and lateral surface brighter, and breast streaking both lighter and much finer. Size similar to nominate *caffer*. Wings of 2 ♀♀ 73, 72, tails (of 2) 50.5 mm each.

Range. Zambia east of 28°E. Perhaps also includes the Angolan population.

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Westward range extension into Togo of the Adamawa Turtle Dove *Streptopelia hypopyrrha*

by Robert A. Cheke and J. Frank Walsh

Received 25 June 1988

At 1400 hours on 30 March 1988 R.A.C. heard an unfamiliar dove call, while collecting insects from the Ove river near Tasso (7°36′N, 0°42′E; 450 m a.s.l.) in the highlands of Togo. The calls were repeated every 1–2 minutes and consisted of a mournful "*Cloor-cloor-cl* or *Cloor-cloor-clockpu*", coming from the top of a tree in the gallery forest beside the river; but the source of the sound appeared to be moving. Eventually the bird responsible was seen near the apex of a tree, but within its canopy. The dove was bigger and plumper than a Turtle Dove *Streptopelia turtur*. The diagnostic features recognised were: head, neck and chest white with a grey wash; eye red; bill black; legs dark red; mantle brown; folded wings and upper tail very dark, the latter with a pale square-ended tip. The angle from which the bird was seen precluded sight of the collar but the upper belly was vinous and the lower belly was a remarkably bright pinkish red. The under-tail was dark with a narrow white tip. The dove called repeatedly whilst being watched and occasionally turned a half-circle on its perch, accounting for the earlier illusion of movement.

The plumage characters seen were sufficient for an identification of the dove as an Adamawa Turtle Dove *S. hypopyrrha*. This was confirmed by the calls: Wood (1975) described the most frequent call of *S. hypopyrrha* as a 3 note "*Croor-cr-croor*" or "*Croorr croor croo*" but occasionally a 4 note "*Croor crr-croor coor*".

During 11–13 May 1988 J.F.W. visited the site and heard similar calls, from a single dove, but failed to see the bird. No calls were heard between 1720 and 1755 hours on 11 May but at 0733 and 0815 on 12 May 2 short bursts of calling were heard. These included a 3 note "*Croor croor croo*", a 4 note "*Croor-croor croo croor*" and 2 note calls of "*Croor coo*". At 0745 on 13 May a further burst of calling was heard.

S. hypopyrrha was previously only known from the Jos-Bauchi and Mambilla plateaux in Nigeria, the Adamawa Highlands of Cameroon and SW Chad, but is said to be nomadic (Urban *et al.* 1986). This, the first record for Togo, is a westward extension of range of 800 km. The upland riverine forest habitat where the dove was found in Togo corresponds with its preferred habitat elsewhere, but whether this record signifies a hitherto unknown breeding population or a single vagrant is unclear: the length of the bird's presence at the site and its persistent advertising calls suggest the former. If so the record is of importance as Collar & Stuart (1985) list *S. hypopyrrha* as a candidate species to be treated as threatened.

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Notes on Philippine birds, 12. Seven species new to Catanduanes Island

by Steven M. Goodman and Pedro C. Gonzales

Received 5 July 1988

Catanduanes is the largest of the offshore islands of Luzon, approximately 1513 km^2 in total area. It is separated from Luzon by a water gap, the Maqueda Channel, which at its narrowest point is 8 km wide and c. 50 m deep (Heaney 1986). Catanduanes has been the site of several vertebrate collecting expeditions and the avifauna is one of the best known of the smaller Philippine islands. The most intensive survey of the birds was conducted by Gonzales (1983) between 1968 and 1971. He tabulated 139 species for the island based on his own collections and the earlier work of Ogilvie Grant (1895) and Manuel (1937).

Between 12 and 28 February 1988 we took part in a joint National Museum of the Philippines/Smithsonian Institution vertebrate survey of the island and were able to add an additional 7 bird species to Gonzales's (1983) list. We worked mostly out of 2 localities. The area surrounding our 'forest camp', 8.5 km W of Gigmoto and 5 km E of Summit, 13°47′N, 124°19′E, 250 m elevation, is one of the last remaining tracts of essentially undisturbed dipterocarp forest on the island. It is known locally as 'Little Mindanao'. The second site was the 'road camp', 8.5 km W and 1 km N Gigmoto, 13°48′N, 124°19′E, 200 m elevation, a partially cleared area with some secondary growth and cultivation.

All specimens referred to herein were prepared as skins and deposited in the National Museum of the Philippines (NMO), Manila.

CHINESE LEAST BITTERN *Ixobrychus sinensis*

At least one individual was observed several times between 20 and 23 February, in a patch of banana plants along the Buadan River, just below the 'road camp'.

BLACK-WINGED KITE *Elanus caeruleus*

We noted adult Black-winged Kites on 2 occasions along the road by the bank of the Bato River between Virac and Summit; on 14 and 23 February single birds were chased up from roadside perches and closely observed as they flew away.

PHILIPPINE BANDED CRAKE *Rallina e. eurizonoides*

An adult female (NMO 16474) was collected on 22 February near the 'road camp'. The bird, which weighed 105 gm and was not in breeding condition, was taken in a cleared area with some secondary growth and near an abaca grove.

SPOTTED DOVE *Streptopelia chinensis*

On 24 February we examined and photographed a caged Spotted Dove, kept in a private house, which had been captured wild the previous month near the Pajo River, c. 5 km SE of Virac, and represents the first documented record from Catanduanes. The trapper mentioned that he first noted this species on the island in January or February 1987.

In the past few decades the Spotted Dove has rapidly colonized portions of the Philippines, apparently spreading from the islands of Balabac and Palawan. The first documented record for Luzon was a bird collected on 22 November 1968 at Dalton Pass, Nueva Viscaya (Gonzales & Celestino 1979). In September and October 1978 it was noted several times near Los Baños, Laguna (Waldbauer & Waldbauer 1982). A specimen (NMO 12349) was taken on Samar Island, to the south of Catanduanes, by Gonzales and Ramos on 20 April 1970 at the Southern Samar Agricultural College, Saludo. This is the closest known locality to Catanduanes inhabited by Spotted Doves and presumably the region from which the colonizing population originated.

LUZON COLLARED SCOPS *Otus megalotis*

On 22 February a male Luzon Collared Scops (NMO 16475) was netted near the 'forest camp'. It was in breeding condition, the testes measuring 26 × 17 mm (left) and 25 × 14 (right), and weighed 180 gm. The specimen is comparable in size, colouration, and tarsal feathering to specimens from Luzon identified by Marshall (1978) as *O. megalotis*. A downy young owl (Delaware Museum of Natural History 73267) taken on Catanduanes at Burgos, Viga, on 21 May 1981 may be either this species or *O. bakkamoena*.

GOLDEN GROUND THRUSH *Zoothera dauma aurea*

An adult male (NMO 16466) Golden Ground Thrush was netted near the 'forest camp' on 20 February. The bird had heavy fat deposits and weighed 172 gm. This species is a winter visitor to Luzon, Mindoro and Palawan (duPont 1971) and had not been previously recorded on Catanduanes.

BLUE-BREASTED FLYCATCHER *Niltava (Cyornis) herioti*

Three specimens were taken at the 'forest camp': immature male (NMO 16439), weight 22 gm; immature male (NMO 16451), 20 gm; adult female (NMO 16461), 18 gm. Subspecific identification was impossible because the 2 recognized forms, *N. h. herioti* from northern and central Luzon and *N. h. camarinensis* from southern Luzon, are differentiated by adult male plumage (duPont 1971).

Acknowledgements

The material gathered on Catanduanes was the result of many peoples' labour. We would like especially to thank Dr. Larry Heaney for providing funds for the work and commenting on this paper, Mr Jacinto Ramos for preparing the skins, and Mr. Renato Fernandez for helping in many ways. We acknowledge the financial support of the National Museum of the Philippines, the Smithsonian Institution, and the U.S. National Science Foundation (BSR-8514223).

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The status of (*Cursorius temminckii*) *damarensis* Reichenow, 1901

by P. A. Clancey

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In the first volume of his monumental work on Afrotropical birds, Reichenow (1901) conditionally named a Damaraland, South West Africa/Namibia, race of Temminck's Courser *Cursorius temminckii* Swainson as follows: "With Damara birds the reddish brown of the crown seems to be paler. These [birds] may be separable as a subspecies *damarensis*." No type-specimen was designated with the rudimentary description and none appears to exist, so that the taxonomic attribution of the name must rest explicitly on the crown colour character. As demonstrated in the recent study of geographical variation in *C. t. temminckii* (Clancey 1984), all 3 subspecies occur in South West Africa, these being *C. t. temminckii* Swainson, 1822: Senegal, with the crown pale Sudan Brown (*vide* Ridgway 1912), as a relatively common non-breeding visitor, *C. t. ruvanensis* Madarász, 1915: Ruwana R., Speke Gulf, southeastern L. Victoria, Mara district, Tanzania, with a darker crown (Amber Brown), breeding on the alluvial flats of the Okavango R. flood-plain of the northeast of the territory, and *C. t. damarensis* Reichenow 1901: no locality, but Damaraland by inference, again with a paler crown (dusty or dull Sudan Brown). In my revision of 1984, *C. t. damarensis* was shown to be centred as a breeder on the saline pans of Botswana, but occurring to the west of this to the Etosha Pan in northern South West Africa/Namibia in small numbers.

Examination of the short series of 7 South West African specimens in the collection of the State Museum, Windhoek in May 1988, revealed that all are attributable to the nominate race, which is a long-distance transequatorial post-breeding migrant from the Sahel and Guinean savannas to the south of the Sahara; these were collected in the Etosha Pan area (19 February), Wilhelmsrute, Gobabis (13 February), Welbacht (? = Welbedacht) (17 March) and the Waterberg (17 November). Neither *ruvanensis* nor *damarensis* is represented in the collection in Windhoek. The paler crown character given for *damarensis* by Reichenow negates it being an earlier name for *ruvanensis*, restricting application to either nominate *temminckii* as a junior synonym or as the definitive name for the saline pan oriented form, as currently interpreted. In the latter event, as Reichenow did not comment to the effect that the back and wings were distinctly paler (in the saline pan phenotype Drab or Light Drab, *v.* Tawny-Olive in *C. t. temminckii*), indications are that his *damarensis* was based on a comparison between migrant nominate *temminckii* taken or observed in northern South West Africa/Namibia and *ruvanensis* from German East Africa. It is noteworthy that the only South West African locality given in Reichenow's 1901 treatment of the present courser is Ondangua, in Ovamboland, which is based on a C. J. Andersson reference of the mid-1800s. As we have no recourse to a comparison of a type-specimen to resolve this issue, I recommend on the basis of: (a) the stated lighter coloured crown, and (b) the absence of a reference to a more drab-coloured dorsum, that (*C. t.*) *damarensis* be treated as a synonym of nominate *C. temminckii,* an established non-breeding visitor to South West Africa/Namibia from north of the Equator. Resulting from this action, a name is required for the "*damarensis*" of Peters (1934), Clancey (1984) and other authors:

Cursorius temminckii aridus, subsp. nov.

Type. ♂, adult. Sekhuma Pan, 160 km W. of Kanye, southern Botswana. Taken on 18 February 1961. Collector's No. SWK 118 (name not given). In the Natural History Museum of Zimbabwe, Bulawayo, Mus. Reg. No. 45822.

Description. Compared with *C. t. ruvanensis* crown paler, being a dull Sudan Brown, and dorsum and wings lighter and greyer, less dark earthen, brown, corresponding to the Drab or Light Drab of Ridgway (1912). Over the lateral head, the cheeks are less washed with light rusty buff, and ventrally the fore-throat is whiter and the breast paler (about Pinkish Buff). The Cinnamon of the mid-breast is both lighter and more restricted, and the black mid-ventral patch is smaller with a corresponding increase in the extent of the lateral white. Similar in size.

The nominate race differs from *aridus* in having a richer Sudan Brown crown, the dorsum and wings warm Tawny-Olive rather than Drab, the lateral head and fore-throat washed with tawny, and with the breast Cinnamon-Buff *v.* Pinkish Buff, the lower mid-breast more strongly tinged Cinnamon. The black belly patch is also broader.

Measurements. Wings of 6 ♂♂, 126–132 (126.6), of 7 ♀♀, 120–128 (124.4) mm.

Material examined. C. t. aridus, 14; *C. t. temminckii*, 77; *C. t. ruvanensis*, 141.

Range. Occurs from the Etosha National Park, northern South West Africa/Namibia, locally east to the saline pans of Botswana south of the Ngamiland swamps and from Makgadikgadi Pan southwards through the Kalahari and regions to the east to the Molopo R. It extends marginally into western Zimbabwe at Hwange (Wankie) National Park and near Bulawayo. Resident, but one taken at Musimbiri, Sabi/Lundi confluence, in southeastern Zimbabwe, on 17 January suggests local seasonal nomadism

Etymology. aridus, Latin, parched or desiccated.

Remarks. The above description is based on Clancey (1984: 371–372).

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The systematic position of the Buff-streaked Chat (*Oenanthe/Saxicola bifasciata*)

by Alan Tye

Received 5 August 1988

The Buff-streaked Chat is an enigmatic species, endemic to southern Africa. It was considered by Hall & Moreau (1970) as of "uncertain affinities". At its original description, Temminck (1829) named it *Saxicola bifasciata*, thus placing it in a genus which at that time covered a variety of chats, including most wheatears. It was later transferred to the ant-chat genus *Myrmecocichla* (e.g. Seebohm 1881) while other wheatears remained in *Saxicola*. However, at that time *Myrmecocichla* bore little resemblance to the genus as we now know it: Seebohm (1881) considered it to comprise 8 species in 3 groups, of which 6 species (2 groups) are now included in *Cercomela*. (The remainder of present-day *Cercomela* was included with the wheatears in *Saxicola*.) The third group in Seebohm's *Myrmecocichla* comprised the Buff-streaked Chat and the Southern Anteater Chat *M. formicivora*.

The very diverse *Myrmecocichla* as constituted by Seebohm (1881) was later dismantled, with the majority of its species transferred to *Cercomela* but, over the years, further species were added to it, forming a *Myrmecocichla* genus quite different in character from that in which Seebohm placed the Buff-streaked Chat.

The Buff-streaked Chat superficially resembles some of the ant-chats in having white (or buff) shoulders, but this mark is due to buff scapulars in the Buff-streaked Chat while in the ant-chats it is a result of white wing-coverts. In other characteristics, the Buff-streaked Chat differs from the ant-chats in plumage, egg-colour and behaviour and does not appear to be closely related to them. Ripley (1962) removed it and restored it to the wheatears (which by that time were placed in *Oenanthe*) "on plumage and behavioural grounds" but without giving detailed reasons.

In plumage, the Buff-streaked Chat is actually quite unlike any wheatear, although it does bear a striking resemblance to the Stonechat *Saxicola torquata* and Whinchat *S. rubetra*. It seems worthwhile to compare in detail what is known of the plumage, morphology, behaviour and ecology of the Buff-streaked Chat with 'other' wheatears (hereafter termed simply wheatears or *Oenanthe* spp.) and with *Saxicola* spp.

Plumage

The Buff-streaked Chat superficially resembles the Stonechat, but a detailed comparison is required to substantiate this resemblance.

The male Buff-streaked Chat has a black throat, a feature found in some species of both *Saxicola* and *Oenanthe,* but the remainder of the underparts of the Buff-streaked Chat is a deep cinnamon-buff, as in the Stonechat and Whinchat but unlike any *Oenanthe* except the Desert Wheatear *O. deserti.* Male Buff-streaked Chats have a cream supercillium, as in some species of both genera (including the Whinchat but not the Stonechat).

The upperparts of the Buff-streaked Chat, from crown to back, are mottled black and brown, unlike any *Oenanthe* but strikingly like the upperparts of the Stonechat and Whinchat. In all 3 species the fresh feathers have black centres with broad brown fringes. Indeed, the exactitude of the resemblance in this character alone would strongly suggest relationship.

The Buff-streaked Chat's rump is cinammon or deep buff, as in the Stonechat. This condition is also approached by the 2 'red-rumped' wheatears, Tristram's *O. moesta* and the Red-tailed *O. xanthoprymna.*

One of the most arresting characters of the male Buff-streaked Chat is its cinnamon-buff or creamy-white inner wing-coverts and scapulars which contrast with the dark wings and upperparts. This precise pattern is found in no *Oenanthe* but is approached most closely by the Mountain Wheatear *O. monticola* and Somali Wheatear *O. phillipsi,* in which most or all of the wing-coverts are white or pale grey, and by the Desert Wheatear in which the innermost coverts are buff (concolorous with the back). However, cream or white inner wing-coverts and outer scapulars are a prominent feature of several *Saxicola* spp., including the Stonechat, in which the extent of white varies greatly between subspecies and individuals. The females of the Stonechat and Buff-streaked Chat resemble one another closely, except that the wing-flash is absent from the female Buff-streaked Chat.

In *Saxicola* the tail may be wholly black (as in the Stonechat) or black and white (e.g. Whinchat). The Buff-streaked Chat has a black tail. All *Oenanthe* spp. except one subspecies of the Mountain Wheatear *O. m. nigricauda* have a patterned black and white tail. Although *O. m. nigricauda* demonstrates that a wholly black tail can arise in *Oenanthe,* this character allies the Buff-streaked Chat more closely with *Saxicola.*

In isolation, each of the resemblances to *Saxicola* might not appear convincing but as a suite of characters (Table 1), the overall similarity between the Buff-streaked Chat and, especially, the Stonechat seems unlikely to have arisen by convergence. In contrast, the Buff-streaked Chat resembles closely no single wheatear species: it has an odd mix of characters, one or other shared with different species (e.g. general colour with Desert Wheatear, rump colour with Tristram's, etc). These isolated resemblances are less likely to indicate close relationship and more likely to represent convergence.

TABLE 1

Comparison of plumage characteristics of the Buff-streaked Chat with the Stonechat *Saxicola torquata* and wheatears. + signifies agreement with Buff-streaked Chat, – signifies disagreement.

	Buff-streaked Chat	Stonechat	*Oenanthe* spp.
Underparts	Rich cinammon-buff	+	–(+ *deserti*)
Tail	Black	+	–(+ *m. nigricauda*)
Upperparts	Mottled black & brown	+	–
Rump	Cinammon-buff	+	–(+ *moesta & xanthoprymna*)
Shoulder-patch	Contrasting buff-white	+	–(+ *monticola*)

TABLE 2

Structural characteristics of the Buff-streaked Chat compared with *Saxicola* and *Oenanthe* spp. Figures are means calculated from data in the following sources: *S. torquata & S. rubetra* – Cramp (1988); Buff-streaked Chat & *O. monticola* – Tye (in press); *O. deserti* – Cramp (1988), Tye (in press). Figures in brackets are measurement divided by body weight$^{0.33}$.

		Body weight (g)	Wing length (mm)	Tail length (mm)	Bill length (mm)
Saxicola torquata	♂	15	66(26.7)	46(18.6)	15(6.1)
	♀	14	65(27.0)	45(18.7)	15(6.2)
S. rubetra	♂	19	77(28.8)	45(16.9)	15(5.6)
	♀	17	76(29.6)	43(16.7)	15(5.8)
bifasciata	♂	35	93(28.4)	61(18.7)	20(6.1)
	♀		87(26.6)	58(17.7)	19(5.8)
Oenanthe monticola	♂	33	113(35.2)	75(23.4)	22(6.9)
	♀		109(34.0)	73(22.7)	22(6.9)
O. deserti	♂	20	90(33.2)	61(22.5)	18(6.6)
	♀		87(32.1)	58(21.4)	18(6.6)

Morphology

The Buff-streaked Chat is a larger bird than the Stonechat and other *Saxicola* spp., although this may not be of great significance. Similar size differences exist between subspecies of other chat species.

Structural differences between *Saxicola* and *Oenanthe* include the following (Meinertzhagen 1930, Leisler & Winkler 1985): the bill of *Saxicola* is generally shorter and flatter at the base than in *Oenanthe*; *Oenanthe* has fewer, finer, shorter rictal bristles than *Saxicola*—in the latter they are very prominent, resembling those of flycatchers Muscicapidae (*sensu stricto*); the wing and tail of *Saxicola* are shorter in comparison with body size than in *Oenanthe*.

Some of these factors are examined for the Buff-streaked Chat in relation to 2 *Saxicola* spp. and 2 *Oenanthe* spp. in Table 2. The 2 *Saxicola* spp. were chosen as those geographically closest and most similar in appearance to the Buff-streaked Chat. The 2 *Oenanthe* spp. represent extremes of body size in that genus and include the species (Desert

Wheatear) which perhaps most closely resembles the Buff-streaked Chat in appearance.

Table 2 considers wing, tail and bill lengths in relation to body size (measured by body weight$^{0.33}$) and clearly demonstrates 2 points: first, that *Saxicola* and *Oenanthe* differ considerably (no overlap) in these characteristics and, second, that the Buff-streaked Chat falls within the range of *Saxicola* in all 3 features. The agreement with *Saxicola* comes despite the fact that the Buff-streaked Chat is a considerably larger bird. Differences between the Buff-streaked Chat and the Mountain Wheatear (which are similarly sized) and similarities between the 2 wheatear species (which differ greatly in size) show that these results are not the product of allometry but are probably true generic characteristics.

The bill of the Buff-streaked Chat is finer than that of most *Saxicola* but rather broader than that of *Oenanthe*. Taking into account bill length (proportional to body size) and shape, the Buff-streaked Chat's bill is perhaps intermediate between the 2 genera (short like a *Saxicola,* finer like an *Oenanthe*).

The Buff-streaked Chat possesses long, prominent rictal bristles, as in *Saxicola* spp.

Egg

The egg of the Buff-streaked Chat is unusual in having a ground colour of creamy-white or buff, heavily freckled with lilac and red-brown (see Priest 1948). In this it resembles the typical pattern of neither *Saxicola* nor *Oenanthe* (nor *Myrmecocichla*), which normally have pale blue or greenish blue eggs, spotted with red-brown. The Buff-streaked Chat egg more closely resembles those of *Thamnolea* and *Monticola* spp., although a few species of both *Saxicola* and *Oenanthe* sometimes approach it. Egg colour seems quite labile in the Turdidae and these resemblances may not bear any taxonomic significance (Lack 1958).

Ecology and Behaviour

The Buff-streaked Chat has been studied little in the field. What is known of its biology is summarized by Tye (in press). Most aspects of its behaviour and ecology do not ally it more closely with either *Saxicola* or *Oenanthe*, partly because these 2 genera are themselves rather similar. One small difference exists in breeding biology: *Oenanthe* are primarily underground hole-nesters, whereas *Saxicola* mainly nest on the ground (under bushes) or in crevices. The Buff-streaked Chat is mainly a crevice nester, often placing its nest on the ground, on the down-slope side of a rock, concealed by grass tufts (Vincent 1947). In this it resembles *Saxicola*.

The major behavioural-ecological difference between the 2 genera lies in habitat selection and foraging behaviour. *Saxicola* spp. in general prefer bushier habitats than *Oenanthe,* and forage mainly by sallying to the ground or aerial sallying from elevated perches (Greig-Smith 1982, Moreno 1984, Leisler & Winkler 1985, Cramp 1988). *Oenanthe* is a more terrestrial group, occupying more open, steppe and semidesert habitats.

Although ground and aerial sallying are used by most wheatear species, they also commonly run on the ground to capture terrestrial prey by a technique known as dash-and-jab (Cornwallis 1975, Tye in press).

In a recent study of the foraging behaviour of the Buff-streaked Chat (Tye 1988), I found it difficult to reconcile certain aspects of the bird's behaviour with that of wheatears. Differences from 'normal' wheatear behaviour included a comparatively high frequency of aerial and ground sallying, the absence of typical dash-and-jab, and an unusual bounding gait. Since the Buff-streaked Chat was then regarded as a wheatear, I attempted to explain these differences in behaviour from the normal wheatear pattern as adaptations to its unusual (for a wheatear) habitat. The Buff-streaked Chat inhabits montane grassy slopes, with tall grass and boulder fields in the Drakensberg of southeast Africa. In this habitat the tall grass prevents dash-and-jab, necessitating alternative foraging and movement techniques. No other wheatear species has this type of habitat as its major environment; all others inhabit short-grass savannas or steppes with much bare ground.

However, if the Buff-streaked Chat is regarded as a *Saxicola,* there is no difficulty in explaining either its habitat preferences or its behaviour. Montane grasslands with tall grass are the normal habitat of many *Saxicola* spp., including the Stonechat, which lives alongside the Buff-streaked Chat in the Drakensberg (pers. obs.). The foraging behaviour of the Buff-streaked Chat is similar to that of the Stonechat (cf. Greig-Smith 1983 with Tye 1988), especially where the 2 are using similar habitat. In the study area described in Tye (1988), both species captured the majority of their prey by aerial sallying (Tye 1988 and unpublished). One difference is that the Stonechat perches more often on vegetation (e.g. Greig-Smith 1983, Moreno 1984), whereas the Buff-streaked Chat shows a strong preference for rocks (Tye 1988). However, where rocks are available, Stonechats also use them as perches from which to hunt: in the same area studied by Tye (1988) where Buff-streaked Chats used rocks for 96% of their perches, 53% of Stonechats' perches were also on rocks (Tye, unpublished). The stronger preference for rocks exhibited by Buff-streaked Chats is perhaps explained by their larger, heavier build.

Finally, the unusual bounding gait noted for Buff-streaked Chats (Tye 1988) seems, in fact, typical of *Saxicola:* Cramp (1988) describes the gait of the Stonechat as a "bouncing hop".

Conclusion

The Buff-streaked Chat resembles *Saxicola* more than *Oenanthe* in plumage (detail and general appearance), morphology and ecology. It bears the closest resemblance to the 2 geographically closest *Saxicola* spp., the Stonechat and Whinchat. Most of the characteristics shared by the Buff-streaked Chat and wheatears are common to many chat species and genera and are therefore of little taxonomic significance. Details of plumage, structure and behaviour shared with *Saxicola,* on the other hand, do seem to indicate evolutionary relationship. On this basis the Buff-streaked Chat might be regarded as a giant Stonechat.

It may be speculated (Tye in prep.) that the genus *Oenanthe* may not be monophyletic, even after excluding the Buff-streaked Chat from it. Certain *Oenanthe* spp. or superspecies seem closely linked with *Myrmecocichla* on the one hand (e.g. *O. monticola*) and *Cercomela* on the other (e.g. *O. pileata* superspecies). These 3 genera, perhaps together with *Thamnolea*, *Saxicola* and others, seem to stem from an early chat radiation, although the precise relationships between these genera and their constituent species-groups are obscure. Although the Buff-streaked Chat most closely resembles *Saxicola* spp., it is conceivable that it represents an evolutionary line which has been independent since the time of the postulated early chat radiation. If this is the case, it merits its own monotypic genus. However, lacking clear evidence on the course of events at the time of the isolation of the ancestors of the present genera, the more conservative option of placing it with its nearest apparent relatives seems the better course. The Buff-streaked Chat thus returns to its original genus, becoming *Saxicola bifasciata* Temminck 1829.

Acknowledgements

I thank the staff of the British Museum (Natural History), particularly P. R. Colston, G. S. Cowles and M. P. Walters, for access to specimens in their care. Petrina Brooke and Rob Little made possible the field study of the Buff-streaked Chat which stimulated this work, while Stuart Keith expressed tolerance towards and guarded agreement with the heterodox classification which encouraged its publication.

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Address: Dr A. Tye, British Ornithologists' Union and Edward Grey Institute of Field Ornithology, Dept of Zoology, South Parks Road, Oxford, OX1 3PS, England.

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BOOKS RECEIVED

Fry, C. H., Keith, S. & Urban, E. K. (Eds.). 1988. *The Birds of Africa*. Vol. 3. Psittaciformes to Piciformes. Pp. 611. 32 colour plates by Martin Woodcock. Line drawings by Ian Willis. Acoustic References by Claude Chappuis. Academic Press. £71·50. 24 × 32 cm.

The third volume of this excellent work completes the non-passerines, with style and layout the same as in Volume 2. The literature up to August 1986 has been reviewed and, for many species, use has been made of more recent material also. In systematic treatment, a few changes have been made at low taxonomic levels, but the authors have been conservative in higher taxa.

Hollom, P. A. D. 1988. *The Popular Handbook of British Birds*. 5th Revised Edn. Pp. 486. 16 colour plates of eggs and 7 in black-and-white; 120 colour plates of birds and 8 birds in flight in black-and-white. Many line drawings. Hardback. £14·95. 21 × 13 cm.

This well-known and deservedly popular book, "the lineal descendant" of the classic *The Handbook of British Birds* (1938–41), has been thoroughly revised, especially the status and distribution sections, the text being entirely reset, and the scientific sequence re-arranged. It is 36 years since the first edition appeared and it is improbable that this present revision will be the last, so valuable is the book's whole approach to ornithology.

NOTICE TO CONTRIBUTORS

Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin*. They should be typed on one side of the paper, with treble-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper*. Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*. Informants of unpublished observations should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

A contributor is entitled to 10 free offprints of the pages of the *Bulletin* in which his contribution, if one page or more in length, appears. Additional offprints or offprints of contributions of less than one page may be ordered when the manuscript is submitted and will be charged for. Authors may be charged for proof corrections for which they are responsible.

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Correspondence about Club meetings and other matters not mentioned above should go to the Hon. Secretary, R. E. F. Peal, 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR.

CONTENTS

Page

CLUB NOTES. Report of the Committee for 1988. Annual General Meeting Agenda 1

GÉRARD J. MOREL. Paradoxical Sahel: rich wetlands surrounded with arid bush steppe 4

DUNCAN PARISH & SURAPOL ARDSEUNGNURN. Swinhoe's Storm Petrel *Oceanodroma monorhis*; a species new for Thailand 9

BRIAN WOOD. Biometrics, iris and bill colouration, and moult of Somali forest birds 11

JIŘÍ MLÍKOVSKÝ. Note on the osteology and taxonomic position of Salvadori's Duck *Salvadorina waigiuensis* (Aves: Anseridae [Anatidae]) 22

LLOYD F. KIFF, MANUEL MARIN A., FRED C. SIBLEY, JUAN CARLO MATHEWS & N. JOHN SCHMITT. Notes on the nests and eggs of some Ecuadorian birds 25

PETER W. WENDELKEN & ROBERT F. MARTIN. Recent data on the distribution of birds in Guatemala, 2 31

J. S. ASH, D. J. PEARSON, G. NIKOLAUS & P. R. COLSTON. The mangrove reed warblers of the Red Sea and Gulf of Aden coasts, with description of a new subspecies of the African Reed Warbler *Acrocephalus baeticatus* 36

P. A. CLANCEY. The status of *Anthus caffer mzimbaensis* Benson, 1955 43

ROBERT A. CHEKE & J. FRANK WALSH. Westward range extension into Togo of the Adamawa Turtle Dove *Streptopelia hypopyrrha*. . 47

STEVEN M. GOODMAN & PEDRO C. GONZALES. Notes on Philippine birds, 12. Seven species new to Catanduanes Island 48

P. A. CLANCEY. The status of (*Cursorius temminckii*) *damarensis* Reichenow, 1901 51

ALAN TYE. The systematic position of the Buff-streaked Chat (*Oenanthe*/*Saxicola bifascata*) 53

BOOKS RECEIVED 59

The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

COMMITTEE

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N. H. F. Stone (1986)
R. H. Kettle, B.A. (1988)
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J. H. Elgood (1986)
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Edited by
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Volume 109 No. 2 June 1989

FORTHCOMING MEETINGS

Tuesday, 25 July 1989 at 6.15 p.m. for 7 p.m. in the Senior Common Room, Sherfield Building, Imperial College, S.W.7, **Dr Margaret Carswell** will speak on **"The Uganda Atlas of Birds".** Those wishing to attend should send their acceptance with a cheque for £5 per person to reach the Hon. Secretary at 1 Uppingham Road, Oakham, Rutland LE15 6JB by first post on Tuesday, 11 July, if possible*.

Dr Carswell lived and worked in Uganda from 1968 to 1987 and is senior author of The Uganda Atlas. Her address will be illustrated with colour slides by Mrs B. J. Holcombe.

Tuesday, 26 September 1989 at the same place, in conjunction with the West African Ornithological Society, **Mr Roger Beecroft** will speak on **"Birds in the Sahara".** Those wishing to attend should send their acceptance with a cheque for £5 per person to reach the Hon. Secretary (address above) not later than first post on Tuesday, 12 September, if possible*.

Mr Beecroft will speak particularly of observations of migrants and wintering birds made on a journey from Algeria to Niger and back from October to December last.

Tuesday, 7 November 1989 at the same place, **Mr Peter Robinson** will speak on **"Enforcement of Conservation Management—what is the R.S.P.B. actually achieving through its Investigations Work?".**

Tuesday, 28 November 1989 at the same place, **Dr P. J. Jones** will speak on **"The migration strategies of Palaearctic migrants in West Africa in relation to Sahelian drought".**

*It will be possible to take acceptances up to the weekend before a Meeting, but Members are asked to accept by 14 days before a Meeting, if they possibly can. A plan showing Imperial College will be sent to Members who request it when sending their acceptance for a meeting.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 109 No. 2 Published: 20 June 1989

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Tuesday, 9 May 1989 at 6 p.m. 14 Members were present.

The Minutes of the Annual General Meeting held on 10 May 1988, which had been published (*Bull. Brit. Orn. Cl.*108: 152–153), and the Minutes of the Special General Meeting held on 7 February 1989, which were read, were approved and signed by the Chairman.

The Report of the Committee for 1988 was presented and, on the proposal of the Honorary Secretary seconded by Mr B. Gray, it was unanimously received and adopted.

The accounts for 1988 were presented. After discussion, on the proposal of Mr S. Howe, seconded by Mrs M. N. Muller, they were approved.

The Editor reported that the submissions for publication in the *Bulletin* would probably continue to provide the enlarged size of recent issues again this year.

There having been no additional nominations, the following were declared duly elected:-

Chairman:	Mr R. E. F. Peal (*vice* Revd. G. K. McCulloch, who retired on completion of his term of office).
Vice-Chairman:	Mr J. H. Elgood (*vice* Mr D. Griffin, who retired on completion of his term of office).
Hon. Secretary:	Mrs A. M. Moore (*vice* Mr R. E. F. Peal).
Hon. Treasurer:	Mrs D. M. Bradley (re-elected).
Committee:	Mr S. J. Farnsworth and Mr D. Griffin (*vice* Mrs A. M. Moore and Mr J. H. Elgood).

Mr J. H. Elgood proposed a vote of thanks to the Chairman for all the work he had done for the Club; this was seconded by the Honorary Secretary and carried with acclamation.

The Chairman proposed a vote of thanks to the retiring Honorary Secretary for his unstinting efforts in that office for the exceptional time of 18 years, during which he had himself, to a large extent, brought the Club to its present flourishing state. This was carried with acclamation.

The Meeting closed at 6.15 p.m.

British Ornithologists' Club
Income and Expenditure Accounts for the year ended 31 December 1988

	1988 £	£	1987 £	£
INCOME				
Subscriptions received				
Members Subscriptions	3,081		3,233	
Subscribers	2,832	5,913	2,908	6,141
Donations received		46		43
Investment Income				
Stevens Bequest Fund	162		157	
Deposit Interest	2,816		2,620	
Barrington Trust Fund	48	3,026	48	2,825
Rent received				
Property—Clovelly, Tring	2,340		2,210	
Less costs	(1,225)	1,115	(129)	2,081
Income Tax Recovered				
Deeds of Covenant	213		255	
Other	59	272	63	318
Sales of Bulletin Back Numbers		1,853		1,977
Meetings—Income	1,926		965	
—Expenditure	(1,914)	12	(852)	113
		12,237		13,498
Expenditure				
Printing and publication of *Bulletin*	5,871		7,085	
Separates	334		480	
	6,205		7,565	
Less—Sales of Separates	(114)		(319)	
	6,091		7,264	
Postage of Bulletin	716		677	
Publication and Distribution Costs of current issue of Bulletin	6,807		7,923	
Reprinting Back Issues	68		1,026	
Printing, postage and stationery	859		224	
Telephone	115		12	
Insurance	25		26	
Notices of meetings	107		53	
Accountancy	292		130	
Miscellaneous Expenses	81		120	
Bank Charges	7		7	
		(8,361)		(9,521)
Excess of Income over Expenditure		£3,876		£3,977

British Ornithologists' Club
Balance Sheet as at 31 December 1988

	1988 £	£	1987 £	£
General Fund				
Balance at 1 January 1988	25,702		21,205	
Add: Excess of income over expenditure	3,876		3,977	
Provision in 1986 no longer required	—	29,578	520	25,702
Balance at 31 December 1988				
Trust Fund—F. J. F. Barrington Legacy				
Balance at 1 January 1987		445		445
Stevens Bequest Fund				
Balance at 1 January 1987	60,606		60,256	
Sale of Piano	—		350	
Balance at 31 December 1988		60,606		60,606
		£90,629		£86,753
Represented by:-				
Stevens Bequest Fund Investment				
£2101 $10\frac{1}{4}$% Exchequer Stock 1995 at cost		2019		2019
Barrington Trust Fund Investment				
£880 $5\frac{1}{2}$% Treasury Stock 2008/12 at cost		445		445
Freehold Property		58,000		58,000
		60,464		60,464
Current Assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Bank —Current Account	409		684	
—Post Office Giro	831		360	
—Deposit Account	8,508		7,564	
—Nat. Sav. Bank	25,796		22,549	
Sundry Debtors	67		—	
	£35,612		£31,158	
Current Liabilities				
Subscriptions received in advance				
—Members	732		775	
—Subscribers	1,377		1,529	
Sundry Creditors	3,338		2,565	
	£5,447		£4,869	
		30,165		26,289
		£90,629		£86,753

These Accounts have been prepared from the books and records of the Club, and we certify them to be in accordance therewith.

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G. K. McCULLOCH *Chairman*
D. M. BRADLEY *Honorary Treasurer*

9 May 1989

The seven hundred and eighty-fourth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 6 December 1988 at 7 p.m. and was arranged in collaboration with the Ornithological Society of the Middle East. There were present 18 members of the Club with 15 guests. 3 members of both Club and OSME (marked * below) with 1 guest and 4 other members of OSME with 2 guests

Club members present were: Revd. G. K. McCulloch (*Chairman*), Dr J. S. Ash, Miss H. Baker, Mrs D. M. Bradley, I. D. Collins, Dr H. Q. P. Crick, M. C. Gibbons, Revd. T. W. Gladwin, D. Griffin*, K. W. Henshall, Dr M. G. Kelsey, Dr J. F. Monk, Mrs A. M. Moore, P. J. Oliver, R. E. F. Peal, R. E. Sharland, N. H. F. Stone, A. R. Swash, A. R. Tanner, Mrs E. E. Warr* and G. R. Welch*.

Other OSME members present were: B. H. Beck, C. G. R. Bowden, G. Pilling and Mrs H. Welch.

Guests present were: Mrs J. W. Ash, Dr R. J. Baker, Dr J. D. Bradley, J. Chappell, Mrs P. Chappell, Miss R. Dovey, Mrs F. M. Farnsworth, Mrs J. M. Gladwin, Mrs M. C. Gibbons, Miss E. Hawkins, Miss S. Hill, Mrs I. McCulloch, P. J. Moore, Mrs M. Oliver, Mrs M. B. Pilling, Miss E. Smith, Mrs G. Swash and A. J. Warr.

The speaker was Mr C. G. R Bowden, who showed the film "Autumn in Arabia Felix".

He then spoke on "Birds in Yemen and S. W. Arabia and their Conservation", elaborating on the information in the film and giving information from observations in adjacent countries.

The seven hundred and eighty-fifth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Tuesday, 7 February 1989 at 7 p.m. The attendance was 37 members and 18 guests.

Members present were: Revd. G. K. McCulloch (*Chairman*), Miss H. Baker, R. C. Beecroft, Mrs D. M. Bradley, D. R. Calder, Commander M. D. Casement, R.N., S. E. Chapman, Dr R. A. F. Cox, the Earl of Cranbrook, Dr H. Q. P. Crick, J. H. Elgood, S. J. Farnsworth, A. Gibbs, Revd. T. W. Gladwin, B. Gray, D. Griffin, K. W. Henshall, S. Howe, R. H. Kettle, I. T. Lewis, T. R. Mills, Dr J. F. Monk, Mrs A. M. Moore, R. G. Morgan, Mrs M. N. Muller, J. G. Parker, R. E. F. Peal, M. L. R. Romer, V. J. Sawle, Dr R. C. Self, P. J. Sellar, R. E. Sharland, N. H. F. Stone, J. J. Wheatley, Lieut-Col. T. C. White, Dr J. B. Wood and M. W. Woodcock.

Guests present were: Dr R. J. Baker, Commander M. Barritt, R.N., E. Boerma, Dr N. F. Davies, Mrs Jean Edrich, Mrs F. M. Farnsworth, Dr E. F. J. Garcia, Mrs J. M. Gladwin, Robin Gore-White, Catherine Hoff, Lieut-Cdr. W. Houghton, R.N., Mrs I. McCulloch, P. J. Moore, E. M. Nicholson, the Lord Norrie, Miss A. Nussey, R. Ranft, and Mrs B. J. Woodcock.

Dr E. F. J. Garcia gave an address, illustrated with many fine slides, on "Aspects of Bird Conservation in Spain".

The seven hundred and eighty-sixth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 14 March 1989 at 7 p.m. The attendance was 18 Members and 16 guests.

Members present were: Revd. G. K. McCulloch (*Chairman*), Miss H. Baker, Mrs D. M. Bradley, D. R. Calder, P. J. Conder, S. J. Farnsworth, Revd. T. W. Gladwin, R. H. Kettle, Dr J. F. Monk, Mrs A. M. Moore, R. G. Morgan, Mrs M. N. Muller, R. E. F. Peal, R. S. Pritchett, V. J. Sawle, N. H. F. Stone, A. D. Tomlins and M. W. Woodcock.

Guests present were: Miss E. Archer, Dr R. J. Baker, Mrs C. Bradley, E. Bradley, Dr J. Bradley, M. J. Bradley, Mrs F. M. Farnsworth, Mrs J. M. Gladwin, Mrs I. McCulloch, P. J. Moore, C. A. Muller, Mrs M. S. Prys-Jones, Dr R. P. Prys-Jones, Dr Werner-Suter, Frau D. Suter-Häberlin and Mrs B. J. Woodcock.

During supper Mrs D. M. Bradley spoke briefly on a recent visit to the Falkland Islands.

Dr Werner Suter gave an illustrated address on "Cormorants wintering in Switzerland". An abstract of his address will be published in a future number of the *Bulletin*.

The seven hundred and eighty-seventh Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Wednesday, 5 April 1989 at 7 p.m. The attendance was 36 members and 32 guests.

Members present were: Revd. G. K. McCulloch (*Chairman*), M. A. Adcock, Miss H. Baker, P. J. Belman, J. H. R. Boswall, J. J. Bowley, Mrs D. M. Bradley, Dr Margaret Carswell, P. J. Conder, Dr R. A. F. Cox, M. J. Crosby, J. H. Elgood, S. J. Farnsworth, G. D. Field, A. Gibbs, B. Gray, Dr A. Gretton, D. Griffin, Dr F. D. Kelsey, R. H. Kettle, Mrs Amberley Moore, Mrs M. N. Muller, P. J. Oliver, R. E. F. Peal, R. C. Price, E. P. Richards, M. Romer, D. S. Salt, V. J. Sawle, Dr R. C. Self, P. J. Sellar, R. E. Sharland, N. H. F. Stone, Dr A. R. H. Swash, Dr A. Tye and M. A. Walmsley.

Guests present were: Mrs B. Adcock, J. Aitchison, Dr R. J. Baker, Miss A. Barker, Miss A. Bennett, J. H. Elphick, Mrs F. M. Farnsworth, Jane Goffe, A. J. Holcombe, Katie Hoff, S. Jones, C. P. Kelsey, Dr Algirdas Knystautas, A. Lambert, R. H. G. Lowes, Mrs I. McCulloch, P. L. J. Mantle, Dr Amicia Melland, P. J. Moore, Dr Caroline Murphy, B. O'Brien, P. J. Oliver, Mrs H. Price, R. D. Ranft, P. H. Ryley, Dr T. Salathé, Mrs G. O. Swash, Mrs H. Tye, S. Usui, Zhilvinas Valius, S. de Vere and M. G. Wilson.

Mrs M. N. Muller spoke briefly on a recent visit to the Juan Fernandez Islands and Dr A. Tye spoke, also briefly, on a visit to the St Andrew and Old Providence Islands of Colombia in the Caribbean Sea.

Dr Algirdas Knystautas then gave an address on "Birds of the Soviet Union". He dealt especially with conservation and threats to the environment and the effects upon birds and other animal life. He illustrated it with very fine photographs from a 20,000 mile journey in 1988 from Vilnius, Lithuanian S.S.R. eastwards, which included Central Asia and the Lake Baikal region.

The discovery of new Australian species by John Gilbert, 1838–1845

Abstract of the talk to the British Ornithologists' Club, 20 September 1988

Many of the type specimens of Australian birds and mammals in museums around the world were originally attributed to John Gould, the artist and naturalist, who published fine books on the fauna of Australia, with illustrations in many cases based on these specimens. Some are in the Liverpool Museum, bequeathed by Gould's friend, the 13th Earl of Derby (Largen & Fisher 1986), and research has revealed that many were actually collected by Gould's assistant, John Gilbert. Gilbert also wrote manuscript accounts of his travels and discoveries in Australia, and many of his remarks were quoted, often word-for-word, in Gould's publications (Fisher 1985).

In 1838 John Gould embarked on an expedition to Australia, accompanied by Gilbert, aged 26. Although Gilbert initially stayed with his employer while they were collecting in Tasmania, he soon showed such competence that he was sent alone to explore the almost unknown territory of Western Australia. Specimens from Gilbert's first visit to the region include many of importance, such as the type of the Western Mallee Fowl *Leipoa ocellata*. He also collected the first examples of Gilbert's Rat Kangaroo *Potorous tridactylus gilberti*, named after him by Gould. In July 1840 he moved to Port Essington (on the coast of Northern

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Territory), where he obtained the types of the Masked Finch *Poephila personata*, the local subspecies of scrubfowl *Megapodius reinwarti tumulus* and the female type of the Gouldian Finch *Chloebia gouldiae*. His mammal collections were also of importance and included the types of the northern subspecies of Sugar Glider *Petaurus breviceps ariel*.

After a short trip to Timor in October 1840, where he obtained a particularly fine series of birds, Gilbert returned to London in March 1841. Gould was obviously well pleased with his assistant's capabilities, because by February 1842 Gilbert was on his way back to Western Australia.

Here Gilbert collected the first specimens of the Blue-breasted Wren *Malurus pulcherrimus* and the Noisy Scrub Bird *Atrichornis clamosus*. He also discovered a small songbird which John Gould named after him, Gilbert's Whistler *Pachycephala inornata gilbertii*, and collected specimens of that most peculiar marsupial, the Pig-footed Bandicoot *Chaeropus ecaudatus*.

Gilbert left Western Australia for Sydney at the end of 1843. Later, in the Darling Downs area of southern Queensland, he discovered the Paradise Parrot *Psephotus pulcherrimus*, an extremely colourful little bird which is now probably extinct. One of the types is in the Liverpool Museum; Gilbert collected this in May 1844, just before he joined the expedition of Ludwig Leichhardt (Fisher 1986). The German explorer intended to cross Australia from Brisbane to Port Essington, and Gilbert saw great possibilities for collecting new animals en route.

At dusk on 28 June 1845, when the expedition had reached the base of the Cape York Peninsula, John Gilbert was killed when aborigines attacked the camp. The rest of the party eventually arrived at Port Essington with his specimens, amongst which were several new forms. The type of the Cape York subspecies of the Brown Treecreeper *Climacteris picumnus melanota* was collected on the day Gilbert was killed.

Some of Gilbert's specimens, although well documented, have not yet been found; but museum collections such as those in Dublin and Turin have still to be searched. Curatorial mishaps, including the loss of labels or the casual disposal of material in the last century, may have resulted in some specimens, including types, being lost entirely.

It has been suggested (Moyal 1986) that John Gilbert represents the most able and productive of the early collectors in Australia, despite having been active in that country for only 7 years. A river, a mountain range and other features are named after him and there are several monuments; but, until very recently, details of his early life remained obscure.

After long hours of searching archives and the Mormon Genealogical Index, some details of Gilbert's background have now been found. He was born in Newington Butts, in south London, on 14 March 1812, the son of a carpenter. He appears to have married twice and was available to accompany Gould to Australia in 1838 only because recently dismissed as the first-ever curator of the Shrewsbury Museum (Torrens 1987). He had tried to install his second wife in his rooms at the museum, much to the horror of the Trustees, and thus England lost one of her finest field naturalists to Australia.

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Notes on Chilean birds, with descriptions of two new subspecies

by Manuel Marin A., Lloyd F. Kiff & Luis Peña G.

Received 12 August 1988

Among South American countries Chile is relatively well studied ornithologically, but it still contains some areas which have seldom, if ever, been visited by ornithologists and this is particularly true for the northernmost portions of the country. From 1980 to 1986 the Western Foundation of Vertebrate Zoology (WFVZ) conducted several surveys of birds, mostly under the direction of Peña (LP), in northern Chile. In addition, a survey of the birds of Isla Chiloé was made by Marin (MM) from January to April 1981. This report presents significant new information on bird distribution and breeding records obtained during these studies.

In the following accounts the species nomenclature and sequence are mostly those of Meyer de Schauensee (1966). The terms of Palmer (1962: 13) are used to describe egg shape, and capitalized and numbered colour names are those of Smithe (1975, 1981). Measurements were made using the techniques described by Baldwin *et al.* (1931). Since few weights of Chilean birds have appeared in the literature, such data are included where available. All specimens collected by MM and LP are presently housed at the WFVZ. Material from the Museum of Comparative Zoology (MCZ), American Museum of Natural History (AMNH), and the Field Museum of Natural History (FMNH) was also examined.

COLLECTING LOCALITIES

Tarapacá Province

1. Mamiña, 100 km NE of Iquique (20°05′S, 69°14′W); 2700 m. A small E–W transverse valley mostly devoted to agriculture with cacti, grasses and *Baccharis* sp. on the steep dry slopes.

2. Quebrada de Camarones, 70 km S of Arica (28°40′S, 70°39′W); 500–900 m. An E–W transverse valley, heavily modified by agriculture with scattered stands of *Schinus molle* and *Baccharis* sp. and, in well-watered spots, *Cortaderia* sp. The slopes are sandy and almost devoid of vegetation.

3. Quebrada de Parca, 100 km ENE of Iquique (20°01′S, 69°12′W); 2700 m. Like Mamiña.

4. Quebrada de Suca; 25 km S of Camarones (19°12′S, 70°00′W); 900 m. Like Quebrada de Camarones.

5. Valle de Lluta, c. 30 km NE of Arica (18°25′S, 70°06′W); 940 m. Like Quebrada de Camarones.

Antofagasta Province

6. Tulor (2450 m), Quitor (2500 m) and Guatin (3200 m). These are 3 well populated small oases near San Pedro de Atacama (22°55′S, 68°13′W), which is surrounded by much agricultural activity (mostly fruit orchards). The slopes of the valleys are covered with the 'pimiento' (*Schinus molle*) and several cacti and grass species. The dominant plant along the creeks is a *Cortaderia* sp.

7. Quebrada Paposo (25°02′S, 70°29′W); 650 m. A large transverse canyon extending inland from the Antofagasta coast. The vegetation is xerophytic, including an abundant shrub, the 'lechero' (*Euforbia lactiflua*), and several cacti (*Copiapoa* and *Opuntia*), but the area is frequently immersed in coastal fog.

Malleco Province

8. Pichinahuel, 110 km S of Concepción, Cordillera de Nahuelbuta (38°09′S, 72°39′W); 800 m. An area dominated by beech (*Nothofagus*) forests with *Araucaria* trees at higher elevations.

Chiloé Province

9. Laguna Coluco, 60 km S of Ancud, Isla Chiloé (42°06′S, 73°57′W); 25 m. A small lake, c. 70% of it covered with aquatic plants (*Heleoarchis* sp.) at the time of MM's visit.

10. Islas Talcahue (or Las Negras), 50 km W of Ancud, Isla Chiloé (41°53′S, 74°02′W); 5 m. Two small rocky islets with a few scattered patches of vegetation c. 200 m off the NW coast of Isla Chiloé.

SPECIES ACCOUNTS

SNOWY EGRET *Egretta thula*

Johnson (1967) regarded this species as an abundant resident in Chile as far south as Valdivia, but as only a casual visitor to Llanquihue and Chiloé. More recently, Wheelwright (1978) reported an apparent straggler from Magallanes Prov. in May 1976, and a specimen was also collected 8 km S of Punta Arenas, Magallanes Prov. in May 1979 (Venegas & Jory 1979), both records occurring in the non-breeding season.

During his survey of Isla Chiloé, MM found a breeding colony containing 9 pairs of these egrets on 15 Jan 1981. The colony was at site 10 on one of the 2 islets called Talcahue (or Las Negras), located c. 200 m off the northwestern coast of Isla Chiloé. The nests were placed on long-leaved plants (*Gregia* sp.) and were built with its leaves. The centres of the nest platforms were lined with feathers. Most of the nests contained young a

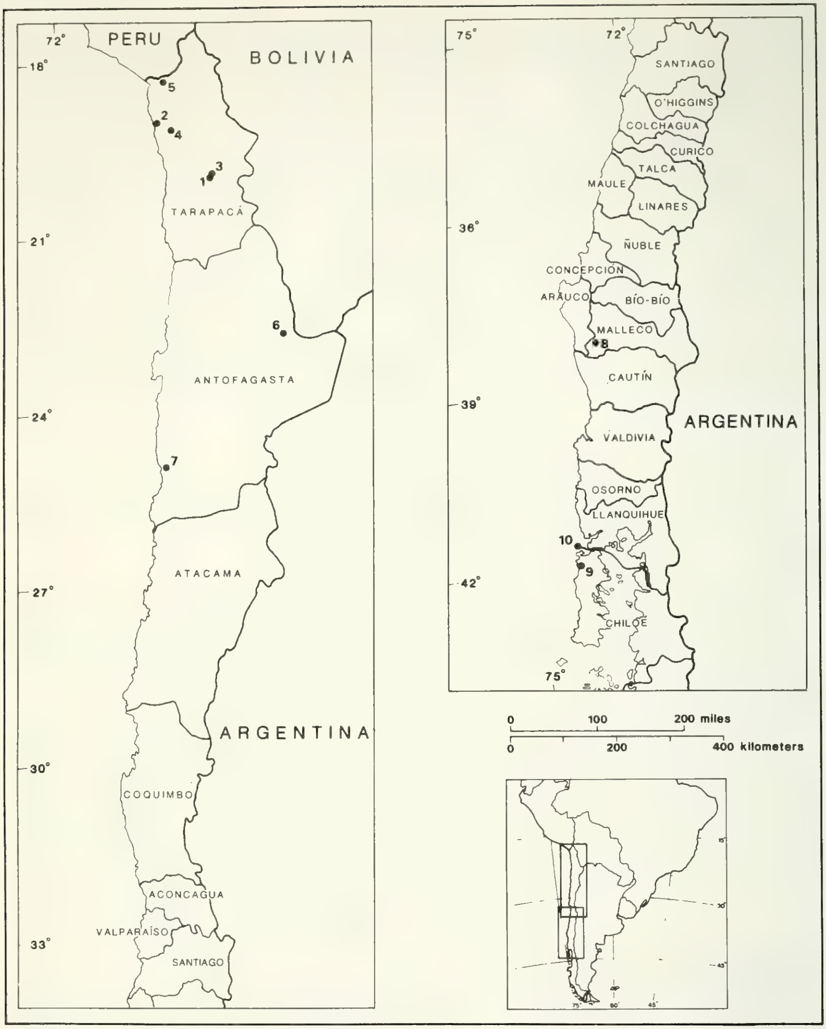
72°
18°
21°
24°
27°
30°
33°
PERU
BOLIVIA
TARAPACÁ
ANTOFAGASTA
ATACAMA
ARGENTINA
COQUIMBO
ACONCAGUA
VALPARAÍSO
SANTIAGO
1
2
3
4
5
6
7
75°
72°
36°
39°
42°
75°
SANTIAGO
O'HIGGINS
COLCHAGUA
CURICO
TALCA
MAULE
LINARES
ÑUBLE
CONCEPCION
ARAUCO
BÍO-BÍO
MALLECO
CAUTÍN
ARGENTINA
VALDIVIA
OSORNO
LLANQUIHUE
CHILOE
8
9
10
0
100
200 miles
0
200
400 kilometers

Figure 1. Map of northern Chile showing WFVZ collecting localities (numbers match those given site descriptions in the text).

few weeks old. A fresh C/2 was collected (WFVZ 129,145), the eggs measuring 40.0 × 31.9 mm and 42.35 × 33.6 mm, with whole weights of 22.0 and 26.0 g respectively. The eggs were elliptical and subelliptical in shape and pale bluish-green in colour.

CINEREOUS HARRIER *Circus cinereus*

Although Johnson (1972) implied that this species occurs in Chile north to Arica, there are no specimens or documented sight records for it north of Valle de Copiapó, Atacama Prov, where a male was collected on 25 Aug 1923 (Hellmayr 1932). In the Antofagasta Range, between 1 and 11 Sep 1982, LP collected a female (WFVZ 24,111) at Quitor, 480 km N of the Valle de Copiapó.

DOLPHIN GULL *Leucophaeus scoresbii*

During MM's 15 Jan 1981 visit to the Talcahue islets off Isla Chiloé (site 10), he found a small breeding colony of *Phalacrocorax atriceps*, several scattered nests of *Phalacrocorax magellanicus* and *P. gaimardi*, and a breeding colony of c. 37 pairs of *Sterna hirundinacea*. The nests of all these species were at various stages, ranging from freshly laid eggs to well-grown chicks. Among the *Sterna hirundinacea* nests were 2 nests of *Leucophaeus scoresbii*, c. 8 m apart. One of them contained 2 eggs and the other held one, all of them pipping; none was collected. The eggs were subelliptical and, olive-brown, with dark brown blotches and spots. The nests were bulky elevated platforms built mainly with seaweed and some grass.

The only previously documented breeding localities for this species in Chile are Camp la Punta Estación Gente Grande, Isla Grande, Tierra del Fuego, where 50 pairs were found nesting in Nov 1952 (Philippi *et al.* 1954), and at nearby Isla Magdalena in the Straits of Magellan (Olrog 1948, Parmelee & MacDonald 1975). The Isla Chiloé nests thus represent a northward extension of c. 1500 km of the known breeding range of this species in Chile. Whether this record is of a regular occurrence or an anomalous one requires further study. Hellmayr (1932) speculated that the species was found at Isla Chiloé only during the non-breeding season. Goodall *et al.* (1951) and Johnson (1967) were uncertain as to how far north the species nests in Chile, although Murphy (1936) felt that the species breeds well northward through the Chilean Archipelago.

TRUDEAU'S TERN *Sterna trudeaui*

Few breeding localities are known for this rather uncommon species in Chile. Johnson (1967) provided a synopsis of the earlier account of Barros (1940), who found a small nesting colony at Laguna de Torca, Curicó Prov. Barros also suspected nesting near Maullin, Llanquihue Prov. The WFVZ collection contains a set of 2 eggs (WFVZ 12,018) collected by D. Roel at Corral, Valdivia Prov. on 24 Jan 1932.

On 25 Jan 1981 MM found a nesting colony of c. 15 pairs at Laguna Coluco (site 9) on Isla Chiloé, well to the south of the aforementioned localities. The nests were dispersed into groups of 3–6 pairs, which were on the perimeters or among the outer edges of Brown-hooded Gull *Larus maculipennis* colonies, a tendency also noted by Barros (1940). The nests were large floating platforms with small central depressions and were composed completely of small pieces of a freshwater plant (*Heleoarchis* sp.). Most contained 2 eggs. A set of 2 fresh eggs (WFVZ 129,145) was collected; they are olive-brown with irregular dark brown spots and blotches over the entire surface, oval and long oval in shape, measuring 42.3 × 30.9 and 44.1 × 30.1 mm. Each whole egg weighed 21.0 g.

FERRUGINOUS PYGMY-OWL *Glaucidium brasilianum*

The relationships of the widespread *Glaucidium brasilianum* and the austral form, *G. nanum*, have not been well defined. Wetmore (1922,

1926) suggested that they might prove to be conspecific, and Hellmayr (1932) and Peters (1940) subsequently treated *nanum* as a race of *G. brasilianum*. However, Meyer de Schauensee (1966) regarded them as separate species. The 2 forms have previously been regarded as being allopatric in Chile, *G. brasilianum* being known only from the northernmost province, Tarapacá (Johnson 1967) and *nanum* north only to Atacama Prov. (Johnson 1967). A single geographically disjunct specimen ascribed to *nanum* was reported from Moquegua, southwestern Peru by Chapman (1929).

Wetmore (1926) characterized *nanum* as differing from nominate *brasilianum* by its darker dorsum and heavier markings on the underparts. Chapman (1929) noted that *nanum* has more extensive dark markings on the ventrum and heavier spotting on the sides of the breast, as well as rufous tail bars. Hellmayr (1932) stated that *brasilianum* could be distinguished from *nanum* by having white instead of rufous tail bands, generally only 6 tail bands, and by its greyish-brown upperparts (in contrast to the rufous-brown dorsum characteristic of *nanum*). Finally, Meyer de Schauensee (1970) stated that *nanum* can be separated from other pygmy-owls by having numerous white spots on the wing coverts and scapulars and by its narrowly banded tail. There are no reports of size differences between the 2 forms.

Among our series of Chilean *Glaucidium* specimens are 4 with the characters reported to be diagnostic for *G. brasilianum,* i.e., all have 6 white tail bands and greyish-brown backs. All were collected by LP, one at Valle de Lluta (site 5), and the other 3 at Quebrada de Parca (site 3), both localities lying within the previously reported range of this form in Chile.

There are as well 9 Chilean specimens with the characters ascribed to *nanum* in the WFVZ collection, including 3 from Valle de Lluta, and single specimens from: Quebrada de Parca; Farellones, Santiago Prov; Dalcahue, Isla Chiloé, Chiloé Prov; Chaitén, Chiloé Prov. and Puerto Aysén, Aysén Prov. All these specimens have rufous-brown backs, cinnamon-brown tail bands and spots on the back, and more numerous tail bands, including one with 8, one with 9, one with 10, and 6 with 11. The specimens from the Tarapacá Prov. localities represent a significant northward extension of the range of *G. nanum* in Chile.

The WFVZ collection in addition contains 6 Chilean specimens which appear to be intermediate between these 2 extremes. They have medium brown backs, white spots with brownish edges on the back and tail, larger and more oval tail bands than those of typical *nanum* and an intermediate number of white tail bands with brownish edges, including 4 with 7, one with 8, and one with 9. All the specimens with intermediate characters are from Tarapacá Prov, 5 from Valle de Lluta (site 5) and the other from Quebrada de Camarones (site 2). However, the influence of *brasilianum*-type characters may extend much farther south. An additional specimen from Punitaqui, Ovalle, Coquimbo Prov. within the expected range of *nanum* also shows a whitish tinge to the tail bars and dorsal spots. Furthermore, of the aforementioned *nanum* specimens, those from the southernmost localities are distinctly darker-backed than the ones from northern Chile.

Even among the specimens clearly identifiable as *nanum*, there is considerable variability in the relative widths of the light and dark tail bars. This relationship was the main character used by Wetmore (1922) in designating the central Chilean population as a separate race, *vafrum*, which was described as having dark tail bars twice the width of the light ones in contrast to the equal-sized tail bars of the more southern populations. Thus, we agree with Hellmayr (1932) and Peters (1940) in not recognizing *vafrum*.

The occurrence of dichromatic morphs in *Glaucidium* complicates the interpretation of the Chilean situation. Geographical variation in the frequency of colour morphs in numerous *Glaucidium brasilianum* populations was analysed by Ridgway (1919), who concluded that it was not possible to draw a sharp line between the plumage types. We agree with his conclusions and also note that the range of colour variation exhibited by our combined series of Chilean *Glaucidium* specimens is no greater than that found within single Mexican populations of *brasilianum*, as demonstrated by series in the WFVZ collection. Furthermore, the patterns of variation seen within such samples essentially match the sets of characters used to define the differences between *nanum* and *brasilianum*, i.e., specimens with white tail bars have greyish-brown backs, and rufous-brown backs are associated with numerous cinnamon tail bars. As in northern Chile, various intermediate versions occur between these extremes.

Size appears to be highly variable within *Glaucidium* (e.g. Hellmayr 1932), and we found no geographical size trends among our Chilean specimens when they were segregated by sex (Table 1). Therefore, unless measurements of a larger sample of austral *Glaucidium* specimens reveal significant size differences between nominate *brasilianum* and the more southerly populations, we question the wisdom of recognizing *nanum* as a separate taxon. We suspect that further study will show that the *Glaucidium* populations presently called '*nanum*' are not subspecifically distinct from *brasilianum*, but merely represent a predominance of the darker rufous-brown morph. Ridgway (1919) reported an apparently equivalent situation in his large Texas sample of *G. brasilianum* in which only a single colour morph (rufous tail bands and greyish-brown backs) was found. Several authors, including Chapman (1929) and Kelso (1937) have suggested that the colour morphs in *Glaucidium* are correlated with local environmental conditions, and Marshall (1967) discussed the apparently similar situation in *Otus*. It seems likely, therefore, that more information on the geographical frequencies and possible ecological significance of such morphs is needed before plumage variation in this group can be interpreted taxonomically.

BAND-WINGED NIGHTJAR *Caprimulgus longirostris bifasciatus*

Five specimens of this nightjar collected by LP at Quebrada Paposo (site 7) represent a significant northward range extension of the race *bifasciatus*. The specimens agree with this form in their colour and also on the basis of their long wing length (av. 162.9 mm; range 158.5–166) and tails (122.1 mm; range 121–124.5). Johnson (1965) gave wing and tail measurements of *C. l. bifasciatus* at 162.9 and 119.1 mm, respectively.

TABLE 1
Measurements (mm) and body weights (g) of Chilean *Glaucidium* specimens in the WFVZ collection

WFVZ No.	Locality	Sex	Wing	Culmen	Tail	Wt
	With *brasilianum* colour characters:					
39,222	Valle de Lluta (site 5), Tarapacá Prov.	M	98.5	10.4	74.5	70
34,150	Qbda. de Parca (site 3), Tarapacá Prov.	M	97.5	10.2	74.5	58
34,151	Qbda. de Parca, Tarapacá Prov.	M	99.8	10.8	75.5	63
34,148	Qbda. de Parca, Tarapacá Prov.	F	104.0	11.0	74.5	69
	Intermediate characters, but nearest *brasilianum*:					
29,678	Punitaqui, Coquimbo Prov.	M	102.5	10.7	71.0	75
39,219	Qbda. de Camarones (site 4), Tarapacá Prov.	M	101.0	10.5	74.5	53
39,225	Valle de Lluta, Tarapacá Prov.	M	101.0	10.8	80.0	60
39,224	Valle de Lluta, Tarapacá Prov.	M	102.5	10.3	77.5	60
39,221	Valle de Lluta, Tarapacá Prov.	M	97.0	10.0	75.5	64
39,223	Valle de Lluta, Tarapacá Prov.	F	106.5	10.7	77.2	—
39,226	Valle de Lluta, Tarapacá Prov.	F	104.5	10.8	81.5	68
	Intermediate characters, but nearest *nanum*:					
39,227	Valle de Lluta, Tarapacá Prov.	M	97.5	10.3	75.5	62
39,228	Valle de Lluta, Tarapacá Prov.	F	103.5	11.4	76.5	70
39,220	Valle de Lluta, Tarapacá Prov.	F	107.0	11.5	78.5	82
34,149	Qbda. de Parca, Tarapacá Prov.	F	106.0	11.2	84.5	77
	With *nanum* colour characters:					
36,390	Chaitén, Chiloé Prov.	M	92.5	11.4	65.5	61
36,391	Puerto Aysén, Aysén Prov.	M	95.6	11.0	71.5	60
36,392	Puerto Aysén, Aysén Prov.	M	95.5	10.9	66.5	62
34,825	Farellones, Santiago Prov.	F	112.0	12.7	91.5	—
34,824	Dalcahue/Mocopulli, Chiloé Prov.	?	104.5	11.6	79.5	—

The average body weight of the 5 Quebrada Paposo specimens was 42 (40–45) g.

SPARKLING VIOLETEAR *Colibri coruscans*

Widely distributed in the Andean and adjacent montane regions of South America, but not previously reported from Chile. LP collected an adult female (WFVZ 34,003), weighing 6 g, at Mamiña (site 1) on 26 Jul 1985. Mamiña is c. 580 km SSE of Arequipa, the southernmost locality for the species in the western Andes of Peru (Johnson 1967). Although this species regularly descends to the coast in Peru in the non-breeding season (Koepcke 1970), it may be a permanent resident in the Tarapacá Andes, judging from this winter record.

WHITE-SIDED HILLSTAR *Oreotrochilus leucopleurus*

LP took 2 female specimens (WFVZ 39,246–7) on 19 and 20 Jul 1986, respectively, at Quebrada Paposo. This represents a significant range extension of this species, which is known north of Atacama Prov. from only a single specimen taken at Hueso Parado, near Taltal, Antofagasta Prov. (Hellmayr 1932). In addition, this is evidently the first winter record for this hummingbird from Chile. Johnson (1967) suggested that the species may migrate in March from its montane breeding grounds in Chile across the Andes to lower altitudes in northeastern Argentina. It is possibly significant, therefore, that the specimens reported here were taken at 600 m, an unusually low elevation for this species.

RUFOUS-BANDED MINER *Geositta rufipennis*

A series of 15 specimens collected by LP at Quebrada Paposo represents a northward range extension of over 200 km for this species in Chile from its previous northern limits in Atacama Prov. In addition, examination of the series indicates that the specimens represent an unnamed race, which may be known as follows:

Geositta rufipennis harrisoni subsp. nov.

Holotype. Adult male, WFVZ 39,266, Quebrada Paposo, Antofagasta Province, Chile (22°02′S, 70°29′W); elevation 650 m, collected 17 Jul 1986, by Luis Pena G., original field number 1698, prepared by Denys Veas.

Measurements of the holotype (mm). Wing (chord) 99.0, tail 53.0, exposed culmen 14.9, tarsus 21.95. Weight 28 g.

Diagnosis. Most similar to *G. rufipennis fasciata*, but much smaller and with a more slender bill, a paler, more whitish belly, virtually lacking rufous markings on flanks and crissum, and with the tips of the longest primaries barely tipped with cinnamon or not at all.

Range. Presently known only from the type locality.

Etymology. Named in honour of Ed N. Harrison, whose contributions to the Western Foundation of Vertebrate Zoology have greatly advanced the knowledge of the birds of Chile.

Remarks. A detailed mensural comparison of this form with *G. r. fasciata* is given in Table 2. The most striking feature of the new form is its much smaller size, averaging about a third less than *fasciata* in body weight and 10% smaller in wing length. In addition, the series of *harrisoni* is generally paler than *fasciata*. The conspicuous Kingfisher Rufous (24) markings on the flanks and crissum characteristic of *fasciata* are almost completely lacking in *harrisoni*, as are the Cinnamon (39) to Cinnamon Rufous (40) tips of the longest primaries characteristic of most specimens of *fasciata*. Most of the specimens of *harrisoni* possess darker, more prominent streaks on the crown than do the majority of the *fasciata* series, although this does not appear to be a wholly reliable character.

Specimens examined (including the holotype).

G. r. harrisoni: 6 ♂♂, 6 ♀♀, 3 unsexed. All from Quebrada Paposo, Antofagasta Prov, Chile.

G. r. fasciata: 8 ♂♂, 12 ♀♀. Coquimbo Prov: Punitaqui, Ovalle 1 ♀ (WFVZ), Cerro Guaquilón 2 ♂♂, 8 ♀♀ (WFVZ); Santiago Prov: El Yeso 1 ♂ (WFVZ), Lo Valdés 1 ♂ (WFVZ), Lagunillas 1 ♂ (WFVZ), Altos de Cantillana 3 ♂♂, 2 ♀♀ (WFVZ); O'Higgins Prov: Alto de los Gusanos 1 ♀ (WFVZ).

SCALE-THROATED EARTHCREEPER *Upucerthia dumetaria hypoleuca*

Previously known in Chile northward to the Río Loa, Antofagasta Prov (Philippi 1964). Two specimens collected by LP at Quebrada de Suca (site 4) extend the known Chilean range of the species c. 250 km northward. A male (WFVZ 39,276) collected on 7 Jul 1986 weighed 39.0 g; a

TABLE 2
Measurements of subspecies of *Geositta rufipennis*

	MALES				FEMALES			
	n	X̄	Range	S.D.	n	X̄	Range	S.D.
		Wing chord				**Wing chord**		
harrisoni	6	95.6	94.0–99.0	3.18	6	95.3	93.0–97.5	1.88
fasciata	8	105.75	103.5–111.5	2.91	12	105.45	101.0–109.5	2.51
		Exposed culmen				**Exposed culmen**		
harrisoni	6	14.5	13.55–15.45	0.72	6	14.6	13.9–15.35	0.60
fasciata	8	14.9	13.4–16.5	0.94	12	14.2	12.9–16.1	0.94
		Exposed culmen/bill height at base				**Exposed culmen/bill height at base**		
harrisoni	6	3.76	3.47–3.92	0.18	6	3.64	3.39–3.88	0.16
fasciata	8	3.25	2.95–3.63	0.25	9	3.30	2.79–3.73	0.27
		Tail				**Tail**		
harrisoni	6	52.1	50.0–53.0	1.12	6	50.6	49.5–52.0	1.24
fasciata	8	56.9	53.0–61.0	2.58	12	56.3	52.0–60.0	2.06
		Tarsus				**Tarsus**		
harrisoni	6	22.1	21.1–23.5	0.86	6	22.2	21.25–23.6	1.00
fasciata	8	23.9	22.5–25.8	1.12	12	23.75	22.9–24.7	0.48
		Body weight				**Body weight**		
harrisoni	6	26.7	25–29	1.63	6	26.6	24–29	2.25
fasciata	6	39.2	36–42	2.04	12	39.5	37–44	2.22

female (WFVZ 39,275) taken on the following day weighed 41.0 g. The male was not in breeding condition; the testes measured 1.5 × 1.4 mm. The specimens agree in size and colour with other examples of the montane race *hypoleuca* in the WFVZ collection, rather than with the coastal *saturatior*. Our series supports the arguments of Hellmayr (1932), Goodall *et al.* (1942), and Johnson (1967) for not recognizing the race *U. d. hallinani,* which Chapman (1919) described from only a single specimen from El Tofo, 60 km (given erroneously as miles by Chapman) NNE of Coquimbo, Coquimbo Prov.

DUSKY-TAILED CANASTERO *Asthenes humicola*

LP collected individuals (WFVZ 39,296–9) of this species on 17, 18, 20 and 22 Jul 1986 at Quebrada Paposo, extending the known range northward c. 230 km from its previously reported Chilean limit, Caldera, Atacama Prov (Hellmayr 1932). A comparison of this series with 25 specimens of the nominate race from Atacama to Maule Provinces, central Chile, indicates that the Quebrada Paposo population represents an undescribed subspecies, which may be known as:

Asthenes humicola goodalli, subsp. nov.

Holotype. Adult male, WFVZ 39,296, Quebrada Paposo, Antofagasta Province, Chile, elevation 650 m, collected 22 Jul 1986, by Luis Pena G; original field number 1758, prepared by Denys Veas.

Measurements of the holotype (mm). Wing (chord) 64.1, tail 72.5, exposed culmen 15.0, tarsus 21.45. Weight 20 g.

Diagnosis. Most similar to *A. h. humicola*, but with more slender bill, less pronounced streaking on breast, more streaks on lores and auricular

TABLE 3
Measurements (mm) of *Asthenes humicola* subspecies

	MALES				FEMALES			
	n	**X̄**	**Range**	**S.D.**	**n**	**X̄**	**Range**	**S.D.**
	Wing chord				**Wing chord**			
goodalli	3	64.0	64.0–64.1	0.05	1	63.0		
humicola	12	64.8	61.0–69.0	2.40	12	65.4	60.0–69.0	2.80
polysticta	5	67.1	64.5–70.0	2.32	4	65.1	65.0–65.5	0.25
	Exposed culmen				**Exposed culmen**			
goodalli	3	14.85	14.45–15.1	0.35	1	15.1		
humicola	12	12.5	11.2–13.35	0.72	10	12.4	11.15–13.7	1.11
polysticta	5	12.7	12.25–12.95	0.28	4	12.55	12.0–12.85	0.37
	Exposed culmen/bill height at base				**Exposed culmen/bill height at base**			
goodalli	3	3.90	3.73–4.09	0.18	1	3.91		
humicola	11	3.26	2.98–3.68	0.21	9	3.29	2.99–3.61	0.22
polysticta	5	3.07	2.89–3.39	0.19	4	3.05	2.72–3.33	0.25
	Tail				**Tail**			
goodalli	3	69.8	69.0–72.5	2.36	1	78.0		
humicola	10	72.4	70.0–76.5	2.65	10	72.3	70.0–74.5	2.65
polysticta	5	74.4	73.0–76.5	2.32	4	72.5	69.5–74.5	2.27
	Tarsus				**Tarsus**			
goodalli	3	21.7	21.1–22.5	0.72	1	21.2		
humicola	12	22.1	21.4–23.3	0.50	9	22.15	21.1–23.25	0.69
polysticta	5	22.9	22.0–24.25	1.02	4	22.0	21.25–22.5	0.53
	Body weight				**Body weight**			
goodalli	3	19.7	19.0–20.0	0.57	1	18		
humicola	6	21.5	20.0–24.0	1.76	3	22.3	22–23	0.57

area, darker crown, and conspicuously brighter cinnamon shoulder patch, flanks, and crissum.

Range. Presently known only from the type locality.

Etymology. Named in honour of the late J. D. 'Jack' Goodall for his lifetime of contributions to Chilean ornithology.

Remarks. See detailed comparison of mensural characters with *T. h. humicola* and *T. h. polysticta* in Table 3.

We follow Meyer de Schauensee (1966) in placing this species in *Asthenes*; Vaurie (1980) assigned it to *Thripophaga*.

Specimens examined (including the holotype).

A. h. goodalli: 3 ♂♂, 1 ♀. Antofagasta Prov: Quebrada Paposo (WFVZ).

A. h. humicola: 12 ♂♂, 12 ♀♀. Coquimbo Prov: Romero 1 ♀ (FMNH), La Compañia 1 ♂ (FMNH), Punitaqui 2 ♂♂, 2 ♀♀ (WFVZ), Cerro Guaquilón (SE of Punitaqui) 2 ♂♂ (WFVZ); Aconcagua Prov: Hda. Limache, Papudo 1 ♂ (FMNH), Zapallar 1 ♀ (MCZ); Valparáiso Prov: Olmué 1 ♂ (FMNH); 'Central Chile' 1 ♀ (MCZ); Santiago Prov: Las Condes 1 ♂, 1 ♀ (MCZ), San Jose de Maipo 1 ♀ (FMNH), Peñalolén 1 ♂ (FMNH), Batuco 1 ♀ (FMNH), Lagunillas 1 ♀ (WFVZ), Cerro Mantancilla 2 ♂♂ (WFVZ); O'Higgins Prov: San Francisco 1 ♀ (FMNH); Colchagua Prov: Cauquenes 1 ♀ (FMNH); Talca Prov: Tamarico 1 ♂ (MCZ); Desembocadura, Río Maule 1 ♀ (MCZ).

A. h. polysticta: 6 ♂♂, 4 ♀♀. Maule Prov: Pilén Alto 1 ♂, 1 ♀ (FMNH); Concepción Prov: Gualpencillo 3 ♂♂, 3 ♀♀ (FMNH), Concepción 1 ♂ (AMNH); Cautín Prov: Traiguén 1 ♂ (MCZ).

TABLE 4
Measurements of *Scelorchilus albicollis* subspecies

	MALES				FEMALES			
	n	**$\bar{X}$**	**Range**	**S.D.**	**n**	**$\bar{X}$**	**Range**	**S.D.**
		Wing chord				**Wing chord**		
albicollis	16	82.3	79.5–89.0	2.51	13	80.1	77.5–83.0	1.99
atacamae	4	79.3	78.5–81.0	1.22	11	75.9	73.0–78.5	1.99
		Exposed culmen				**Exposed culmen**		
albicollis	17	17.7	16.15–18.9	0.71	14	17.2	16.3–18.5	0.71
atacamae	4	17.5	15.65–19.6	1.63	9	17.0	15.2–19.7	1.15
		Tail				**Tail**		
albicollis	17	76.9	69.0–84.0	4.28	14	73.5	66.0–82.5	4.49
atacamae	4	70.4	67.5–75.1	3.29	11	69.4	61.5–77.5	5.23
		Tarsus				**Tarsus**		
albicollis	17	34.85	33.7–36.7	0.84	14	33.8	32.2–35.4	0.99
atacamae	4	33.15	31.2–34.5	1.40	11	33.5	32.2–35.7	1.02
		Body weight				**Body weight**		
albicollis	6	54.8	52–60	2.92	2	46.5	45–48	2.12
atacamae	1	44			1	39		

WHITE-THROATED TAPACULO *Scelorchilus albicollis*

One was collected between 17 and 19 Sep 1982 (WFVZ 25,978) and another 2 on 19 Jul 1986 (WFVZ 39,306–7) by LP at Quebrada Paposo. This becomes the northernmost locality for the species in Chile, as it was previously unrecorded north of Quebrada (Aguada) del Leon, near Caldera, Atacama Prov. The July specimens, a male and a female, weighed 44 and 39 g, respectively. Examination of 48 Chilean specimens indicates that there is pronounced north–south clinal variation, the more northern birds being characterized by their smaller size and more numerous ventral bars, whereas the more southern populations are larger and have a darker mantle and fewer ventral bars. It appears that specimens north of El Tofo, 60 km NNE of Coquimbo, Coquimbo Prov, where the Cordillera Romero abuts the coast and serves as an altitudinal barrier, can be assigned to the race *S. a. atacamae*, whereas those to the south of El Tofo are most conveniently considered to be the nominate race. Measurements of the 2 forms, defined in this manner are given in Table 4.

GREY-BELLIED SHRIKE-TYRANT *Agriornis microptera*

Previously known from only a single locality in Chile, at 4000 m on the Río de Collacagua, inland from Iquique, Tarapacá Prov. (Philippi 1964, Johnson 1967). LP collected a female (WFVZ 39,309) at Valle de Lluta (c. 180 km N of Collacagua) on 14 Jul 1986, and another female at Quebrada de Camarones on 4 Jul 1986. The birds weighed 62 and 63 g respectively. Taken during the austral winter, it suggests there is a seasonal movement to these relatively low elevations. LP also collected 7 additional specimens near San Pedro de Atacama in the Antofagasta Range, as follows: 2 males (WFVZ 27,241, 27,244) and 2 females (WFVZ 27,243, 27,245) at Quitor on 1 and 2 Aug 1982, another female (WFVZ 27,242) at Tulor on 2 Aug 1982, and a male (WFVZ 27,239) and a female (WFVZ 27,240) at Guatin between 24 and 30 Aug 1982. These records, which represent a southerly range extension of 330 km, indicate that the species is widespread and presumably resident in this region. Goodall *et al.* (1946) predicted that it might occur in the Antofagasta Range and farther south in Chile. Including both sexes, the average measurements of our series (n = 9), wing 119.2 mm (116.5–127), tail 98.8 mm (95.0–105.5) and bill 25.2 mm (24.3–25.7), agree with those given by Hellmayr (1927) for the race *A. m. andecola.*

GREAT KISKADEE *Pitangus sulphuratus*

Apparently an uncommon visitor to Chile, since a female (WFVZ 39,379) collected by LP at Quebrada de Suca on 7 Jul 1986 represents only the second specimen for the country. It weighed 54 g, and its ovaries were granular. The only previous Chilean specimen was a bird collected by F. Behn in Jan 1967 near Los Angeles, Bio-Bio Prov. (Johnson 1967).

BRAN-COLOURED FLYCATCHER *Myiophobus fasciatus rufescens*

In Chile, previously known from only a single specimen taken in Sep 1949 by F. Behn in Poconchile, Valle de Lluta, Tarapacá Prov. (Philippi 1964). During LP's surveys in Tarapacá Prov. in Jun and Jul 1986, 5 additional specimens (WFVZ 39,380–4) were collected at Quebrada de Camarones. Four of them (2 males, 1 female, 1 sex undetermined) weighed 9 g, and another female weighed 8 g. None of the specimens had enlarged gonads.

TUFTED TIT-TYRANT *Anairetes parulus parulus*

Common in central Chile from the coast to the brush-covered valleys of the Andean foothills to an elevation of c. 2000 m. However, Philippi (1964) and Johnson (1967) reported it north only to Valle de Copiapó, Atacama Prov. Between 17 and 19 Jul 1986 LP found it relatively abundant at Quebrada Paposo, 230 km north of its previous unquestioned limit in Chile. Four specimens (WFVZ 39,386–9) were taken: 2 females weighing 4 g, a male and an unsexed bird each weighing 5 g. The specimens agree in colour with a large series of the nominate race in the WFVZ collection.

PIED-CRESTED TIT-TYRANT *Anairetes reguloides reguloides*

Goodall *et al.* (1946) considered this to be a very rare species in Chile, recording it only from Arica, Tarapacá Prov. in extreme northern Chile. Between 30 Jun and 3 Jul 1986, LP found it very abundant in Quebrada de Camarones, 70 km to the south. The representative series he collected includes several immature birds, indicating breeding in the area. Four males weighed 6 g, and another weighed 8 g. Three females weighed 5 g, and 3 others weighed 6 g. All the specimens have the immaculate yellow belly typical of the nominate race.

PATAGONIAN TYRANT *Colorhamphus parvirostris*

Three nests of this flycatcher were found by MM in the vicinity of Pichinahuel, 19–20 Jan 1976. The first nest contained 3 well-grown chicks, and the others contained 2 tiny nestlings each. All the nests were in the thick understory of a beech (*Nothofagus*) forest, at 50–110 cm from the ground in 80–120 cm tall shrubs growing along creeks. They were cup-shaped structures of grass and moss, lined with fine grasses and some feathers. On several occasions the adults were observed feeding butterflies to the young. The only previous nesting record for this species in Chile was a set of 3 eggs (WFVZ 55,630) taken in Dec 1938 by C. Jensen and T. Peddar in Tierra del Fuego, 1700 km south of the Cordillera de Nahuelbuta (Johnson 1967).

SHINY COWBIRD *Molothrus bonariensis*

Hellmayr (1932) summarized the early history of this species in Chile. It is not clear whether the Shiny Cowbird became established in Chile as a result of deliberate introductions, from natural dispersal of the birds from Argentina through low passes in the southern Andes, or both, but the species has continued to expand its range steadily from the Santiago region since the last century (Johnson 1967). For example, G. R. Millie collected the first specimen as far north as the Valle del Huasco, Atacama Prov. on 22 Feb 1943 (Goodall *et al.* 1957), but by the 1960s the species was reportedly common from Atacama to Aysén Provinces (Johnson 1967). The incremental spread of the Shiny Cowbird in Chile, based on specimen records given in Hellmayr (1932) and subsequent summaries by Philippi (1964) and Johnson (1972), is shown in Fig. 2.

LP collected a male (WFVZ 39,632) on 15 Jun 1986 at Quebrada de Camarones, 910 km north of its previous limit in Chile. We are unaware of any reports of *Molothrus bonariensis* from southwestern Peru and are thus inclined to assume that this bird came from more southerly populations, rather than from any to the north. It is probable that the species is now moving gradually northward along the coast of Chile.

GREY-HOODED SIERRA-FINCH *Phrygilus gayi*

Common in many areas in Chile, especially in the Andean foothills, but previously known only from Atacama Prov. southward. LP collected a series of specimens (WFVZ 39,491–39,504) at Quebrada Paposo between 17 and 21 Jul 1986, a northerly range extension of 230 km. Collected in the austral winter, the birds had probably descended from inland breeding areas located at higher elevations. Measurements (mm) of 14 individuals were as follows: wing chord 82.3 (75.6–88.9), exposed culmen 13.9 (12.85–14.5), tail 60.9 (55.25–63.5). These are similar to the figures given for the nominate race by Johnson (1967), i.e., wing 86.1, 'bill' 12.5, tail 63.2, but exceed the equivalent measurements (wing 75.6, 'bill' 12.8, tail 56.4) he gave for the smaller race, *P. gayi minor*. Average weights of 8 Paposo males was 22 g, and of 5 females 19 g.

To the south this species ranges well into montane elevations, but it has not been recorded from the Antofagasta Range lying directly inland from Quebrada Paposo, an area occupied by the closely related *P. atriceps*, whose relationships with *P. gayi* have not been clear. An apparent male hybrid (WFVZ 26,147) between *atriceps* and *gayi* was collected by LP between 24 and 30 Aug 1982 at Guatin, 300 km NE of Quebrada Paposo. A detailed comparison of the hybrid with males of *P. atriceps* and *P. gayi* is given in Tables 5 and 6. In general, the specimen more closely resembles *P. atriceps* than *P. gayi* in most details, and suggests that further study is needed to clarify the relationships between the 2 taxa. They were treated as subspecies by Hellmayr (1938), but as species by Meyer de Schauensee (1966), Johnson (1967) and Paynter & Storer (1970), whose

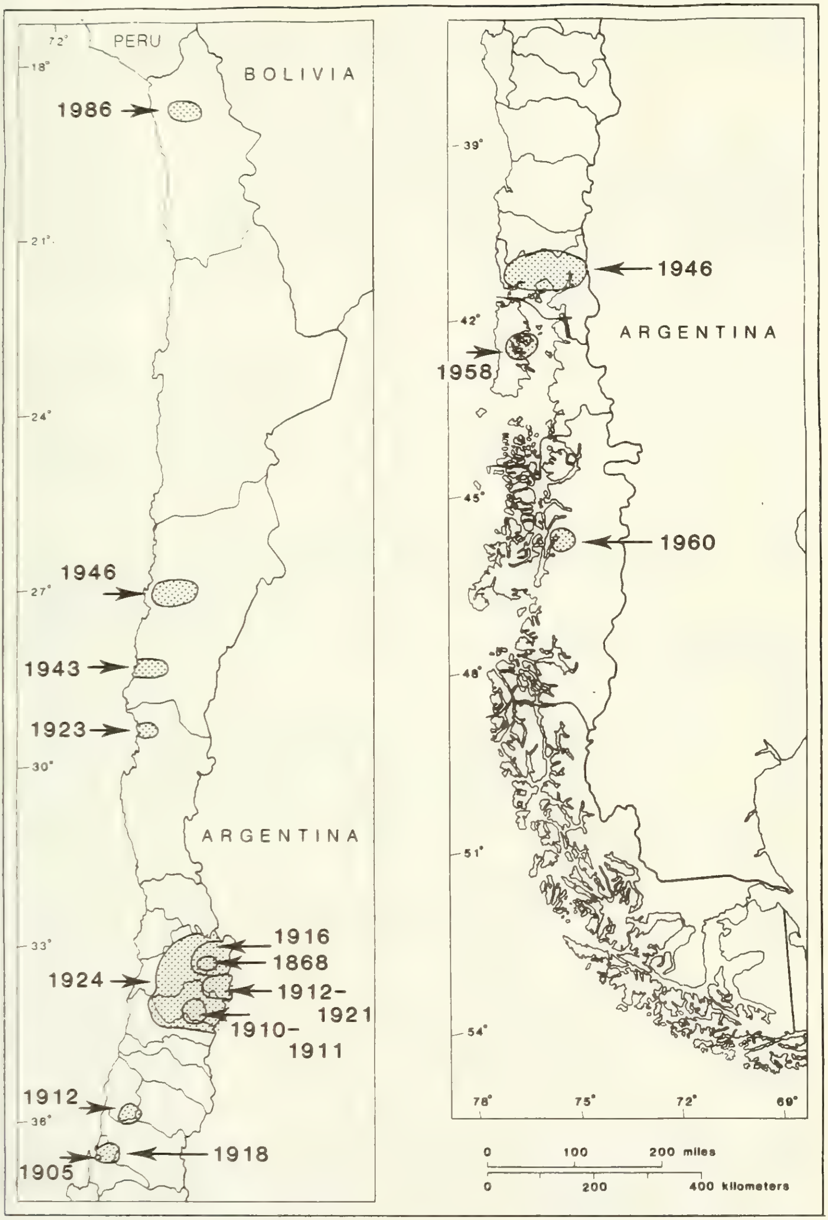
72°
PERU
BOLIVIA
18°
1986
21°
24°
1946
27°
1943
1923
30°
ARGENTINA
33°
1916
1868
1924
1912-1921
1910-1911
1912
36°
1918
1905
39°
1946
42°
ARGENTINA
1958
45°
1960
48°
51°
54°
78°
75°
72°
69°
0 100 200 miles
0 200 400 kilometers

Figure 2. Map showing historic range expansion of the Shiny Cowbird *Molothrus bonariensis* in Chile.

TABLE 5

Measurements of male Chilean *Phrygilus* specimens

	n	$\bar{X}$	Range	S.D.
			Wing chord	
P. atriceps	14	95.2	93.0–96.5	1.12
P. atriceps × gayi	1	89.0		
P. gayi gayi	27	85.6	78.9–92.5	3.87
			Exposed culmen	
P. atriceps	14	13.5	13.0–14.6	0.42
P. atriceps × gayi	1	13.75		
P. gayi gayi	27	12.8	11.4–14.7	0.88
			Tail	
P. atriceps	14	73.2	71.0–74.75	1.50
P. atriceps × gayi	1	67.0		
P. gayi gayi	27	63.55	61.0–69.25	2.96
			Tarsus	
P. atriceps	14	23.6	23.1–24.1	0.38
P. atriceps × gayi	1	22.75		
P. gayi gayi	26	21.4	19.9–22.7	0.73

TABLE 6

Colour comparison of *Phrygilus atriceps, P. gayi gayi* and an apparent hybrid *P. atriceps × gayi*. Numbered colours are from Smithe (1975, 1981)

	P. gayi	**hybrid**	**P. atriceps**
Crown, neck, throat, and upper chest	Plumbeous (78)	Dark Neutral Gray (83)	Jet Black (89)
Mantle	Citrine (51) with greyish wash on feather tips	Buff (24) with Medium Neutral Gray (84) wash across centre	Amber (36)
Thighs	Dark Neutral Gray (83)	Medium Neutral Gray (84)	Jet Black (89)
Vent and crissum	White extends to abdomen	White extends to abdomen	Whitish, but with yellowish wash
Belly	Spectrum Yellow (55)	Spectrum Yellow (55) in middle, shading to Amber (36) on sides	Spectrum
Wings and tail	Blackish Neutral Gray (82) with Plumbeous (78) outer feather margins	Sepia (119) with Medium Neutral Gray (84) feather margins	Jet Black (89) with Dark Neutral Gray feather margins

judgement was based largely upon the observations of Philippi (1942), who had reported that the species were sympatric in Coquimbo Prov, but did not interbreed there. Johnson (1967) later reported finding the forms occurring sympatrically from Atacama to Coquimbo Provinces without any apparent interbreeding.

LP took a large series of *P. atriceps* in the Antofagasta Range, where the hybrid specimen was collected, but none of those specimens showed any signs of intermediacy. He encountered no examples of *P. gayi*. This suggests that these 2 forms may interbreed where one of them is scarce, but not where they are broadly sympatric.

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Notes on behaviour and breeding of the Razo Lark *Alauda razae*

by C. J. Hazevoet

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The Razo Lark *Alauda razae* lives exclusively on the arid islet of Razo (7 km^2) in the Cape Verde Islands. It was discovered in 1897 by Boyd Alexander, who named it *Spizocorys razae*, without giving reasons for referring it to that genus (Alexander 1898a). Shelley (1902) placed it in *Callandrella* (*sic*), also without comment. Bianchi (1905) pointed out that the species has a small but distinct first primary, this being absent in *Spizocorys* and *Calandrella*. Although he thought it was close to the latter, he found it sufficiently different to erect the monotypic genus *Razocorys* for it. It remained there until Meinertzhagen (1951) lumped both *Spizocorys* and *Razocorys* in *Calandrella*, regarding *razae* as "a relict species developed in isolation from an age-old migration of one of the *C. rufescens* group". Finally, Hall (1963) made it clear that *razae*, in view of its structural characters, is closest to *Alauda*, especially *A. gulgula*, and that the differences between *razae* and *A. arvensis* (small size, less pointed wing and longer bill of *razae*) are all attributable to adaptations for life on a small island. She noted that *razae* in general appearance seems to lie between *Alauda* and *Galerida*. Burton (1971), who agreed entirely with Hall's conclusions, drew attention to the remarkable sexual size dimorphism, especially in bill length, in *razae*, pointing to a difference in feeding ecology between the sexes. de Naurois (1969) suggested a relationship between *razae* and *Pseudalaemon fremantlii* of northeastern Africa on account of similarities in structure and plumage pattern. Hall & Moreau (1970) submerged *Pseudalaemon* in *Galerida*. Earlier, Harrison (1966) had already advocated the forming of a wide genus *Alauda*, combining many small or monotypic genera of larks, including *Galerida* and *Pseudalaemon*, but not *Calandrella*. Obviously, there is no agreement about the nearest relative of *razae*, but a recent consensus has developed that it is a species of the *Alauda-Galerida* assemblage. The following notes may provide some material for a further taxonomic analysis.

Observations on behaviour and song

On 1 Mar 1986 and 3 Jan 1988, I visited Razo and made observations on display, vocalizations and breeding of *A. razae*. Sound recordings were made on a Sony WM-D6 cassette recorder with a Nakamichi CM300/CP4 microphone. Sonagrams were made on a Kay Sonagraph 7029 A, using wide band frequency.

On both dates, the larks occurred mainly on the central plateau of the island. Smaller numbers were observed nearer the cliffs and between the 2 hill ridges in the north. Adult birds were seen feeding together and all of them appeared to be paired. Singing birds were commonly heard and birds in both fresh and worn plumage were observed. Besides these, several juveniles were noticed. Altogether, an estimate of 75–100 pairs was made.

Two types of song were distinguishable. The first consisted of short phrases of about one second, with pauses in between phrases also lasting about one second (Fig. 1A). It was uttered both on the wing or while perched on a stone or rock. This appears to be the same song as described by Alexander (1898b), consisting of "the call notes constantly repeated". It is not unlike the song of *A. arvensis* when perched, though probably less variable. The second song type was of a more continuous nature and only heard from birds in song flight, delivered at a height of c. 25 m (Fig. 1B). The birds remained in a constant position against the strong NNE wind. Descent was performed at high speed while the singing continued. Generally, the first part of a song flight consisted of the short-phrased type, while towards the end and during descent the more continuous song was heard. The duration of 3 song flights was timed and lasted 5′15″, 6′20″ and 2′10″. In addition, several call notes were recorded (Fig. 1C–F).

When compared with utterances of *A. arvensis*, it will be seen that both song and calls of *razae* show a great structural resemblance to those of *arvensis*. For sonagrams of *A. arvensis*, see Glutz & Bauer (1985) and Cramp *et al.* (1988).

On 3 Jan, a display was observed in which the male hopped several times c. 10 cm off the ground with head stretched upwards, chest pushed forwards and wings kept off the body a little. Whilst the posturing male encircled the female in this manner, the latter seemingly paid little attention and continued feeding. This hopping display was similar to that of *A. arvensis* as described by Delius (1963); see also Glutz & Bauer (1985) and Cramp *et al.* (1988).

The observations on song and display support Hall's view, which was based on morphological features, that *razae* is closely similar to the skylarks.

Breeding data

On 3 Jan, several birds were collecting nest material and a couple of empty nests were found. These were cup-shaped and undomed, built of dry

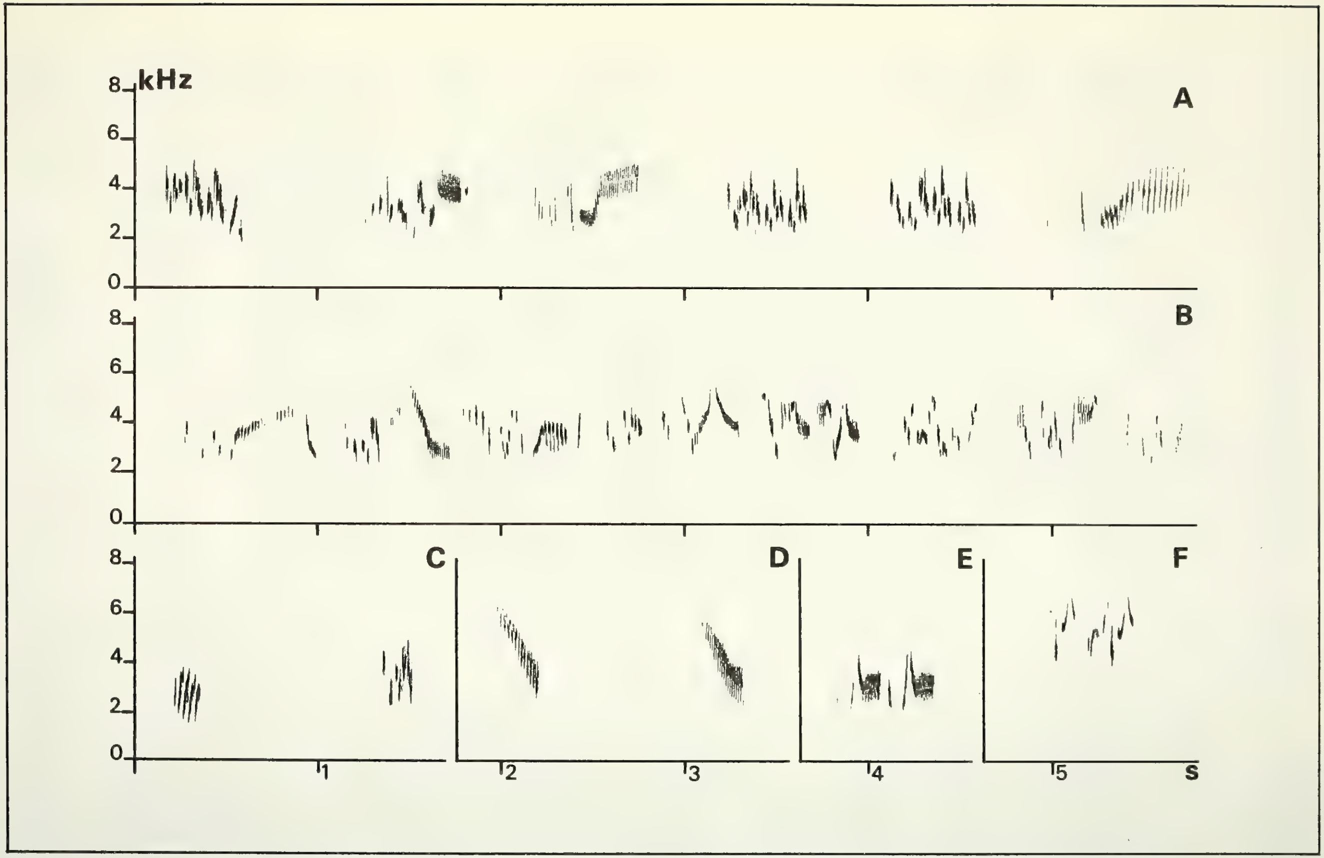

Figure 1. Sonagrams of short-phrased song (A), continuous song (B) and calls (C–F) of *Alauda razae*. Recorded 1 March 1986 by C. J. Hazevoet.

grasses and hidden under a low shrub. Measurements of one nest were: outer diameter 10 cm, inner diameter 7 cm and depth 5.5 cm. On the same date, birds carrying food in a definite direction were seen several times but nests containing young could not be found. It may be noted here that the caption for plate 11 in Schleich & Wuttke (1983), stating that the bird shown is "digging its breeding hole", suggesting that *razae* breeds in holes under the ground, must be due to a misinterpretation of behaviour of an obviously foraging bird.

On 1 Mar, a nest containing one egg was found and photographed. No measurements were taken. The egg was whitish with fine brownish or greyish spots, increasing towards the broad end. The only eggs known so far were collected by Alexander (1898b) on 7 Oct 1897; they cannot be traced and are presumed lost. He described them as resembling those of *Lullula arborea* both in coloration and dimensions, an opinion repeated by de Naurois (1987). However, comparison of the photograph of the egg with plate 79 in Cramp *et al.* (1988) shows that it is similar in coloration to example 4 of *Galerida cristata* and, to a lesser degree, to example 2 of *Calandrella rufescens*. It does not resemble any of the depicted eggs of *L. arborea*. Apart from a nest with eggs found on 7 Mar 1985 (van Harreveld 1985), the above constitute the only egg-dates known so far. A nest containing one young was found on 28 Apr (Alexander 1898a). Juveniles were reported in Nov (Salvadori 1899), Jan (de Naurois 1969) and Jun (Nørrevang & den Hartog 1984). These data suggest a prolonged, erratic breeding season, probably linked to the degree of rainfall in a particular year or season.

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Zoogeographic support for the Spanish Imperial Eagle as a distinct species

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Based mainly on morphological and behavioural criteria several past authors (e.g. Brehm 1861, Dresser 1873, Swan & Wetmore 1924, Hiraldo *et al.* 1976) have considered the Spanish Imperial Eagle *Aquila adalberti* Brehm 1861 as specifically distinct from its Eastern congener, *Aquila heliaca* (Savigny 1809). However, lacking more evidence supporting this distinction, most other authors (e.g. Hartert 1914, Vaurie 1965, Amadon 1982) divide the Imperial Eagle merely into 2 different subspecies, naming *Aquila heliaca heliaca* the Eastern and *Aquila heliaca adalberti* the Spanish Imperial Eagle. Most recently, Collar & Andrews (1988) in the *ICBP World Checklist of Threatened Birds* distinguish *adalberti* and *heliaca* specifically from each other.

At present the ranges of the eagles are separated by a wide gap in central Europe (see Cramp & Simmons 1980), and being allopatric, geographically isolated populations, the most important of the species criteria, i.e. the presence or absence of reproductive isolation (Mayr 1969a), cannot thus be used to determine their taxonomic status. The problem could be solved if it was possible to show that at some historical period, populations of both taxons occupied the same (sympatry) or contiguous (parapatry) ranges; in which case the presence of hybrids would prove a lack of reproductive isolation, while their absence would confirm the specific distinction (Mayr 1969b).

Gonzalez *et al.* (in press), revising the distribution of the Spanish Imperial Eagle since the 19th century, show that it has bred in the west of the Iberian Peninsula and in Morocco, while inmatures during post-breeding dispersal have appeared at least in northeastern Spain, southern France and Libya. The purpose of this paper is to show that in that period the Eastern Imperial Eagle was breeding in the eastern Spanish Pyrenees, France and Algeria, and that neither of the Imperial Eagles interbred at all.

Material and Methods

Information presented here comes mostly from the literature and from eggs and skins preserved in 13 museums we visited and 22 others which we contacted by letter (for details, see Gonzalez *et al.* in press). Data will be presented here by countries. When papers did not indicate the race of the cited Imperial Eagle, we used the description of the bird, if available, to assign it to one of them.

In the case of clutches of eggs preserved in museums, we were unable to distinguish between those of *heliaca* and *adalberti*, so usually we accepted the data on the label. Egg data slips from museum collections can be used to examine some aspects of reproductive biology of birds (McNair 1987) and their past distribution (Hiraldo *et al.* 1979, Hoffman & Collopy 1988); nevertheless, their reliability has been questioned (Storer 1930). Elsewhere, museum oological data have proved useful in understanding the past distribution and population changes of raptor species (Ratcliffe 1980, Bechard 1981). Suspect data, whether apparently falsified or not, are rare and usually detectable (McNair 1987).

Results

Spain

One clutch labelled as *heliaca* and collected by Hübner in Barcelona on 16 Apr 1902 (a date usual in *heliaca* but late for *adalberti*—Cramp & Simmons 1980) is in the Domplatz Museum (DDR). Vayreda y Vila (1883) recorded the occurrence of *Falco imperialis* in the Gerona province and described its plumage as uniform with large white spots on the scapulars, a pattern typical of *heliaca*; he also wrote of its breeding on cliffs, a nest site unknown for *adalberti* and rare, but used, by *heliaca* (Dandford 1878, Dementiev & Gladkov 1966). Fuset y Tubia (1913) identified an adult specimen preserved in a collection from Barcelona and collected in the same province, as *Aquila melanaetus*, Syn. *Aquila imperialis*, which from his description could be *Aquila heliaca*.

France

Before Brehm (1861) described *Aquila adalberti*, several authors reported *Aquila heliaca* in France. Crespon (1840) recorded the occurrence of Imperial Eagles in the Gard and Rhône departments, and Bailly (1853) said that Imperial Eagles which occurred in summer on Mt Cenis (Savoie) came from Piemont (southern Alps). From their records it is not possible to decide which taxon is referred to.

Later, several specimens confirmed the presence of *Aquila heliaca* in France. Mayaud (1938) examined a juvenile collected in the Camargue in 1829 and preserved at the Nîmes Museum (NM). Also at NM we found another specimen, a juvenile also collected in the Camargue, 7 Apr 1931. In the Coimbra Museum we have seen an adult collected in France, without any date and precise locality. Lôche (1867) identified as *heliaca* an adult eagle collected in Bayonne by Labarraque; according to Gurney (1877) this could be the same specimen reported by Jaubert & Barthelemy-Lappomeraye (1859). Sushkin (1901) examined an Eastern Imperial Eagle (not specifying its age) collected in Boulogne-sur-Mer. Glutz *et al.* (1971) referred to the capture of an adult in Môntigny (Yonne) in 1860, and Delmas (1912) named as *Aquila imperialis* another individual (without specifying its age) collected in Provence in 1898. L'Hermitte (1916) reported the capture of a juvenile *Aquila heliaca* (without indicating the species) in Comps (Var) in 1899 and the same author (L'Hermitte 1920) described a specimen, collected in 1920 at Marseille, and in transitional plumage as *heliaca*; but it is difficult to determine the species from his description.

Besides specimens, other evidence suggests the breeding of *Aquila heliaca* in France. One clutch of eggs from the Pyrenees (lacking the date of collection) and corresponding to "Imperial Eagle" (without specifying further) was found in the Bordeaux Museum. Companyo (1863), recorded *Falco imperialis* from Cerdaña, Cpacir and La Vall, noting it was becoming rare and mentioned some reproductive aspects. Dresser (1873) wrote: "In southern France, according to Jaubert & Barthelemy-Lappomeraye (1859) it has occurred several times; there appears to be no doubt the species is the present one—*Aquila heliaca*—and not the Spanish Imperial Eagle". Paris (1912) reported *Aquila heliaca* as an accidental inhabitant of the eastern Pyrenees and the upper Loire. Finally, Menegaux (1932) recorded the species as breeding on trees and cliffs in France, but only very occasionally.

Summarizing: we lack conclusive evidence of the breeding of the Eastern Imperial Eagle in France in the 19th century, but the sum of information strongly suggests it is likely. All the captured adult Imperial Eagles in France and most of the juveniles (see Gonzalez *et al.* in press) belonged to *Aquila heliaca*, as did most of those mentioned in the literature.

Italy

We have not found any references to the nesting of Imperial Eagles in Italy during and since the 19th century (Benoit 1840, Salvadori 1887, Giglioli 1889). Nine specimens have been reported (Perco 1969, Massa *et al.* 1979), all of them corresponding to *Aquila heliaca*. Eight were juveniles and one (collected in Savona on 10 Jan 1882) was an adult (Moltoni 1945).

Sushkin (1901) recorded the species as erratic in Italy. Bailly (1853) cited it as an inhabitant of Sardinia, but it seems that there are no details of observations nor of specimens (A. Mocci-Desmartes).

Switzerland

Degland & Gerbe (1867) reported the occasional presence of *Aquila heliaca* in the Alps. Fatio & Studer (1889) recorded a juvenile and an adult specimen collected in the Jura (both destined for the museums of Gêneve and Bonjour, according to the authors), another specimen (age not specified) in the Oberland of Bern and several observations in the regions of Friburg and Saint Gall.

Other European countries In the past century, the northwestern periphery of the breeding range of Aquila heliaca in Europe (Fig. 1) was Austria (Bauer & Rokitansky 1951), but with isolated breeding pairs in Germany (Luhder 1868) and Lithuania (Bree 1859), all of them countries where the species does not breed at present (Cramp & Simmons 1980). Glutz *et al.* (1971) reported one observation in 1842 on the island of Malta.

Algeria

For some authors (e.g. Heim de Balsac & Mayaud 1962, Glutz *et al.* 1971) the Algerian eagles were referred to *Aquila adalberti*, but most of the information from Algeria points to *Aquila heliaca*. Today the Imperial Eagle is extinct in Algeria (Ledant *et al.* 1981), but it bred there at least until the middle of the past century.

We know of 2 clutches in museums, one collected on Edough Mountain, Bona, in 1855 by Lôche (British Museum Natural History) (BMNH) and another collected in the Forest of Zeid, on 9 Apr 1857 (registered in the BMNH collection but found in Smithsonian Institution Nat. Hist. Museum collection). About this clutch, O. Salvin in his "1857, catalogue Algerian notebook for eggs", p. 6, wrote: "*Aquila Imperialis*. Is much rarer than the last [*Aquila fulvus*] as we were able to hear of only two eyries during the whole of our stay . . . two eggs in the nest, the nest was taken by La Tope and the next day visited by Tristram, who saw the birds about; he described the nest as being in a tree growing out of a rock near Kef Oulsed Zeid . . .". Also, about the same event, Tristram (1860) wrote: ". . . had the satisfaction of watching a fine Imperial Eagle, who plainly exhibited the white feathers of the shoulder . . ., the two eggs which I obtained were hard set . . .".

Malherbe (1855), Tristram (*in* Bree 1859), Buvry (1857) and Homeyer (1863) also mention occurrences of Imperial Eagles in Algeria, but *Aquila adalberti* had not yet been described; *heliaca* is probably the more likely, since Lôche (1867), who was familiar with Imperial Eagles, attributed the skins of adult and juvenile specimens examined by himself to the Eastern population: ". . . [*Aquila heliaca*] peu commun en Algerie . . ., ne s'y recontre guere que dans les forets montagneuses . . . cet Aigle s'en distingue particulierement par les plumes des scapulaires qui forment sur le manteau deux taches blanches et allongees . . .".

Other northwestern African countries

The only references to Imperial Eagles in Morocco correspond to *Aquila adalberti* (Irby 1895, Gonzalez *et al.* in press). We have not been able to find any data from Tunisia, either in the literature or in museum collections.

Discussion

The breeding of Imperial Eagles in northeastern Spain, southern France and Algeria in the 19th century has been proved. Conclusive evidence does not exist to confirm that these birds were Eastern Imperial Eagles *Aquila heliaca*, but the amount of circumstantial evidence strongly suggests it. In fact, neither clutches, skins of adult birds, nor references to

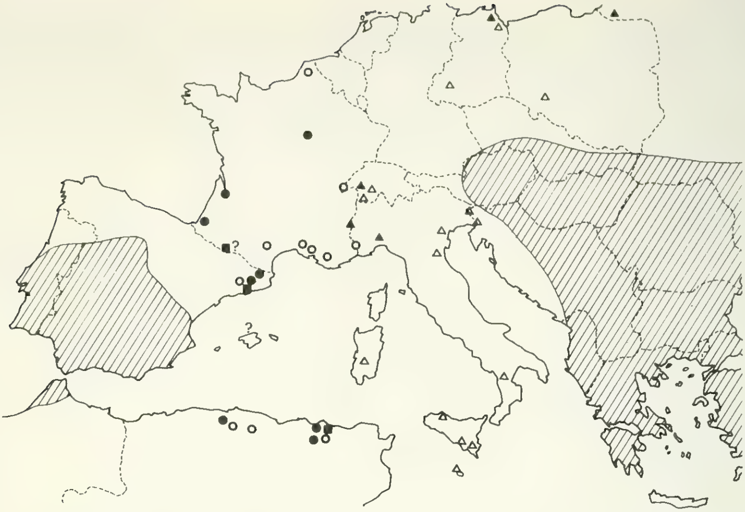

Figure 1. Ranges (shaded) during the 19th century of the Spanish and Eastern Imperial Eagle *Aquila heliaca/adalberti* in western and eastern Europe. Key of localities outside the shaded range Localities of skins of adults (●), non adults (○) and clutches (■) deposited in museum collections; and records of nests or adults in the breeding season (▲) and non-adults (△) from the literature and the authors' own data.

the breeding of *Aquila adalberti* in these regions have been found, while some data for *Aquila heliaca* do exist. Also, although most authors made no comment about the specific identity of Imperial Eagles from these countries, those which did so (e.g. Dresser 1873, in France and Lôche 1867, in Algeria) said they were Eastern Imperial Eagles.

If so, the breeding population of *Aquila heliaca* in western Europe could be partially migrant as in eastern Europe and Asia (Dementiev & Gladkov 1966, Cramp & Simmons 1980), making their way to Africa through continental Italy and Sicily to Cap Bon (Tunisia), as do other Central European raptors (Massa *et al.* 1979, Dejonghe 1980). This could explain the relatively important number collected along this route (Fig. 1). At present, this migrant breeding population has disappeared, but some wandering individuals, probably coming from eastern Europe, are observed from time to time (Cramp & Simmons 1980).

There seems hardly any doubt that the breeding ranges of the Eastern and the Spanish Imperial Eagles were in contact in the last century, and even more probably earlier still, at least in western Europe and probably in northern Africa. Such geographic contact (parapatry) would allow reproductive exchange and the possibility of hybrids. However, we have not detected a single specimen with intermediate plumage attributable to a hybrid in the 248 skins we have examined, and reference to hybrids does not appear at all in the literature. Failure to interbreed would indicate that previous reproductive isolation had led to species formation (Mayr 1969b, Bush 1975, Cracaft 1983), in which case, according to these last authors, the present allopatry of these full species results from their ecological requirements being so similar that they compete and exclude each other mutually.

Because of the lack of conclusive proof, we cannot claim the recognition of *Aquila adalberti* as a distinct species only on the basis of the above evidence. However, the evidence adds support to the reasons previously advanced by several of the authors referred to earlier, and in our opinion the amount of circumstantial evidence suggesting the reproductive isolation of both Imperial Eagles justifies the recognition of *Aquila adalberti* as a full species.

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A new breeding record of the Izu Island Thrush *Turdus celaenops* from the Tokara Islands, southwest Japan

by Noritomo Kawaji, Hiroyoshi Higuchi & Hiroaki Hori

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The Izu Island Thrush *Turdus celaenops* is endemic to Japan, and has been known to breed only in the Izu Islands (Higuchi 1973, O.S.J. 1974). In the migration season it has been recorded as an accidental in the adjacent parts of Honshu main-island (e.g. Fujimura 1948, Hachisuka 1950). There are some specimens or sight records from remote islands, such as Yakushima Island (Ogawa 1905, Shirai 1956), Danjo Islands (W.B.S.J. 1978), and Tairajima Island (Kawaji *et al.* 1987), which are all off the Kyushu main-island; but the status of this thrush in such areas some 1000 km distant from the Izu Islands is not certain.

We observed 4–6 pairs in the 1988 breeding season in Nakanoshima Island (29°50′N, 129°48′E), 27.5 km^2 in area, and of the Tokara Islands, off Kyushu main-island (Fig. 1) and 2 nests were found there. This is the first record of the species breeding in an area other than the Izu Islands. In reporting here the breeding habits in Nakanoshima it is of interest to discuss the significance of this breeding record from the viewpoint of speciation.

The first nest was found on 12 May. The nesting site was 80 m above sea level. The habitat consisted mainly of *Persea thunbergii, Castanopsis sieboldii, Pleioblastus linearis*. The nest was placed 5.6 m above the ground in the forked branches of a deciduous tree *Mallotus japonicus*, which had a diameter at breast height (= DBH) of 14.0 cm. The nest was hemispherical in shape and the mouth opened upward. The inner diameter was 100 mm and the depth 62 mm. Nest materials were mainly pine leaves, moss, and twigs. We saw the female sitting on the nest on 13 May, but, unfortunately, the nest was found destroyed on 26 May.

The second nest was found on 21 June at 180 m a.s.l. It was amongst bamboos, *Pleioblastus linearis*, 2.5 m above the ground, and had been built by adding nest materials to a cluster of pine leaves caught on the bamboo twigs. The vegetation in the vicinity consisted mainly of *Pinus thunbergiana* and *P. linearis*. The measurements of the open nest were

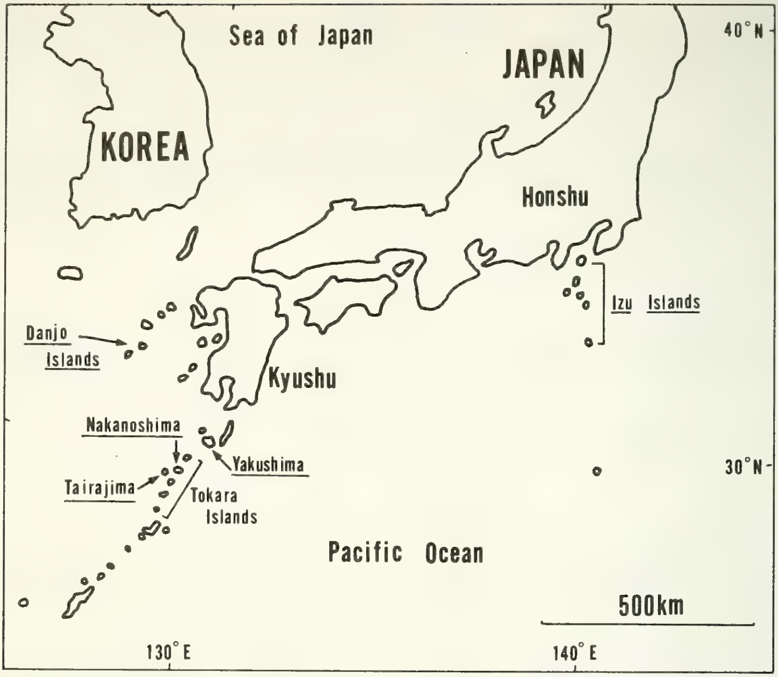

Figure 1. Map showing some islands (underlined) where the Izu Island Thrush *Turdus celaenops* has been observed.

101 mm in inner diameter and 70 mm in depth. The DBH of the nesting bamboo was 24.3 mm. Nest materials were bamboo twigs and pine leaves. There were 5 eggs, pale blue-grey with reddish brown spots, particularly on the obtuse end. Their measurements were 28.6–31.1 mm (29.9±0.93 SD) by 20.4–21.2 mm (20.8±0.32 SD) and they weighed 6.00 g. Fledglings were found in the vicinity of the nest in early July.

The breeding habitat and nesting habits of *T. celaenops* in Nakanoshima are similar to those of the species in the Izu Islands (Higuchi 1973). These breeding records in Nakanoshima suggest the possibility that the species breeds in other islands off Kyushu. Shirai (1956) observed it in late May and early June 1950 on Yakushima, though no individuals have been collected or observed there since the 1960s. Ogawa (1905) and O.S.J. (1958) separated the Yakushima population as a subspecies *T. c. yakushimensis*, differing from the Izu Island subspecies *T. c. celaenops*, though its status in Yakushima was not certain at the time. There are no endemic subspecies of birds in the Tokara Islands, but if *yakushimensis* is a good subspecies, the Nakanoshima population may be equally and possibly similarly distinct in morphology or ecology from the Izu Island population. The song of the Nakanoshima population seemed to be somewhat different from that of the Izu Island population, but no close investigation was made.

There have been 2 hypotheses on the speciation process of the Izu Island Thrush. One is that the species differentiated through geographic isolation from the main-island Brown Thrush *T. chrysolaus* (Fujimura 1948). The other is that the Izu Island Thrush is a relic species that was distributed more extensively in the past and retreated thereafter into island refuges (Yamashina 1942). Yamashina considered that *T. celaenops* is more closely related to the Black-breasted Thrush *T. dissimilis* in South-East Asia than to *T. chrysolaus*. The fact that the Izu Island Thrush breeds in the distant Tokara Islands possibly suggests that the relic hypothesis is more reasonable.

Acknowledgements

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A review of the genera *Calandrella, Spizocorys* and *Eremalauda* (Alaudidae)

by W. R. J. Dean

Received 22 September 1988

One of the recurrent problems in the systematics of African larks is the question of what species compose the genus *Calandrella* Kaup 1829, and whether *Spizocorys* Sundevall 1872 constitutes a natural group. Meinertzhagen (1951) grouped 9 species in *Calandrella*. This arrangement was followed (in the main) by Hall & Moreau (1970), who included the anomalous *Eremalauda dunni* in *Calandrella*, within a species-group that contained *C. obbiensis* and *C. personata*. Maclean (1969) separated a group of 3 southern African species from *Calandrella*, placing them in *Spizocorys*, and removed one further species (*starki*) from *Calandrella*, placing it in *Alauda* L. 1758. A recent checklist of the birds of the world (Wolters 1975–82) contains a number of novelties, among them *Calandrella blanfordi*, *erlangeri* and *cheelensis* elevated to specific level, *obbiensis* placed in *Ammomanes* Cabanis 1851 and *Botha* Shelley 1902 resurrected for *Spizocorys fringillaris*.

In the present paper *brachydactyla, cinerea, acutirostris, rufescens, somalica, raytal, conirostris, sclateri, fringillaris, obbiensis, personata, starki* and *dunni* are considered to be full species. A characteristic common to this group of species is that they are all mainly granivorous (Dean in prep.) and all drink water regularly.

The type of *Calandrella* is *C. brachydactyla* and the genus was originally separated on the reduced outer primary, pointed wing, dark square tail, usually with white outer rectrices, short, strong bill, and nostrils concealed by bristles or plumelets. Some species in the group have rufous on the crown and on the sides of the chest. The type of *Spizocorys* is *S. conirostris* (Sundevall), and the genus was separated from *Calandrella* on the basis of the short, conical bill. The shape of the bill in larks is an adaptive, plastic character, and of limited use as a taxonomic character. Similarly, plumage colour is adaptive, but plumage pattern may be less subject to selective pressures. Length of 1st primary, on which many genera in the Alaudidae have been separated, has apparently some value as a taxonomic character, but length of the 1st primary does vary in relation to the roundness of the wing in larks—round wings relatively speaking having the longest 1st primary (Harrison 1966).

Maclean (1969) separated *cinerea* from *conirostris, sclateri* and *fringillaris* on the lack of homogeneity in plumage pattern, call, nest and, to some extent, display. Because he considered *starki* sufficiently different from the *Spizocorys* group, and similar to *Alauda,* Maclean (1969) placed *starki* in *Alauda*. Display, song-flight and call may provide clues to possible relationships in the *Calandrella* (*sensu latu*) group. Songs and displays may be broadly classified as 'simple' or 'complex'. Simple songs are 3–5 note refrains, given in flight or on the ground, and usually also include the 'courtship song'; song-flight is weakly developed or non-existent. Complex songs have more elements; usually they have an introductory phrase or phrases, followed by a main song which may include mimicry of other species and other calls; song-flight is well developed.

Nest architecture in Alaudidae appears to be an important differentiating characteristic; the presence of a built-up ramp of small stones or mud flakes, or an apron of nesting material extending out from the rim of the cup, or the absence of either a ramp or an apron, may characterize genera.

A summary of species characteristics is given in Appendix 1.

TABLE 1
Morphological, behavioural and biological characteristics of the *Calandrella* species group
(*sensu* Hall & Moreau 1970)

Species	Plumage below	Face	Display	Nest
brachydactyla	shoulder patch	plain	complex	open, with ramp
cinerea	shoulder patch	plain	complex	open, with ramp
acutirostris	shoulder patch	plain	complex	open, with ramp
rufescens	chest band	plain	complex	open, ramp?
somalica	lightly streaked	plain	complex?	open, ramp?
raytal	lightly streaked	plain	complex	open, ramp?
conirostris	lightly streaked	patterned	simple	open, with apron
sclateri	lightly streaked	patterned	simple	open, with apron
fringillaris	heavily streaked	patterned	simple	open, with apron
obbiensis	heavily streaked	patterned	simple?	open, with apron
personata	lightly streaked	patterned	simple?	open, apron?
starki	lightly streaked	patterned, pale eye-ring	complex	open, lacks ramp or apron
dunni	streaked	patterned, pale eye-ring	complex	open, lacks ramp or apron

PROPOSED TAXONOMIC GROUPING

On the basis of shared characters (Table 1), specifically facial pattern, flight display and nest architecture, the following groups are separable:—

Group 1: plumage brown, streaked above, bill brown to black, face plain, chest band or shoulder patches below, complex flight display, nest usually with ramp = *Calandrella.*

Group 2: plumage pale rufous-brown to greyish-brown, streaked above and below, bill pink, pinkish-brown or light brown, face patterned, simple flight display, nest with apron = *Spizocorys.*

Group 3: plumage buffy to pale brown, streaked above, bill whitish-horn or yellowish-white, face patterned, pale eye-ring, streaked below, complex flight display but song simple, nest without ramp or apron = *Eremalauda* Sclater 1926.

The following arrangement is then possible:

Calandrella
–brachydactyla
–cinerea
–acutirostris
–rufescens
–somalica
–raytal

Spizocorys
–conirostris
–sclateri
–fringillaris
–obbiensis
–personata

Eremalauda
–starki
–dunni

Most workers concur that *Calandrella brachydactyla, C. acutirostris, C. cinerea, C. somalica, C. rufescens* and *C. raytal* form a closely related group, since *brachydactyla, acutirostris, cinerea* and *somalica* have at one time or another been considered races of *brachydactyla* or races of *cinerea* (Peters 1960). Meinertzhagen (1951) considered *somalica* and *raytal* to be races of *rufescens.*

Similarly, several workers have grouped *S. conirostris, S. sclateri* and *S. fringillaris,* sometimes including *starki* in the group (e.g. McLachlan & Liversidge 1978). Maclean (1969) considered *starki* distinct from both *Calandrella* (*cinerea*) and the *Spizocorys* group. Recently, Clancey *et al.*

(1987) decided against the treatment of *starki* as a member of the Eurasian skylark assemblage (*Alauda arvensis* and *A. gulgula*). A novelty proposed in the present paper is the linking of *dunni* with *starki*, suggested by the similarity in flight display, facial and general plumage patterns and nest.

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APPENDIX 1

Summary of main characteristics of *Calandrella, Spizocorys* and *Eremalauda* species

1. *C. brachydactyla*.

Plumage: streaked on back, below lacks streaking on chest, but has small dark patch at shoulder. *Face* not patterned. *Bill:* horn-brown upper mandible, pale horn lower. *Legs and feet* flesh brown. *Song* is complex: call in song-flight begins with introductory '*dip dip* . . .', not infrequently interspersed with mimicry of other species' calls, given as the bird ascends steeply in flight on rapidly beating wings to 8–15 m; introductory notes give way to main song, a series of 10–20 (up to 60 recorded) phrases, each phrase 8–10 units, repeated persistently at short intervals. On final note of song-phrase, closes wings and descends, but before reaching ground beats wings to effect slower descent, drops down and then beats wings in order to begin major ascent again, repeating the sequence of song. Song-flight is thus a series of deep undulations, but interspersed with shallow ones. *The nest* is a cup of grass and other dry vegetation, lined with softer material, frequently surrounded by a ramp of lumps of soil or small stones (Cramp 1988).

2. *C. cinerea.*

Plumage: streaked on back, plain below except for rufous patches on sides of chest. *Face* not patterned. *Bill* black. *Legs and feet* dark brown. *Song* is complex with a song-flight similar to *brachydactyla*, but remaining longer in the air. Has similar undulations in flight. *The nest* is a cup of dry grass lined with finer material, placed in a scrape in the ground against a tuft, shrub, stone or large clod of earth, with a ramp of small stones or lumps of soil present on the open side of the nest (data from Dean, in prep.).

3. *C. acutirostris.*

Plumage: streaked, and generally very similar to *brachydactyla*. *Face* not patterned. *Bill* yellowish-horn, blackish on edges and tip. *Legs and feet* flesh brown. *Song* is complex: display similar to *brachydactyla* and *cinerea*. *The nest* is a cup of dry grass, lined with soft material, frequently with a ramp of small stones around the rim (data from Ali & Ripley 1983).

4. *C. rufescens.*

Plumage: heavily streaked above, below streaking on chest forming a distinct pectoral band. *Face* not patterned. *Bill* horn-grey. *Legs and feet* flesh brown. *Song* is complex: display similar to *brachydactyla*, but has a greater repertoire of phrases and mimics songs and calls of other larks, including *brachydactyla*. *The nest* is a cup of dry grass placed in a scrape. No data available on ramp or surround (Cramp 1988).

5. *C. somalica.*

Plumage: streaked above, below whitish, chest tinged pale buff and streaked lightly with dark brown. *Face* not patterned. *Bill* reddish. *Song and display* apparently similar to *cinerea*. *The nest* is an open cup of grass placed in a scrape in the ground (data from Archer & Godman 1961).

6. *C. raytal.*

Plumage: lightly streaked above, below whitish, with indistinct streaking on sides of chest. *Face* not patterned. *Bill* horn-grey, horn-brown to blackish. *Legs and feet* flesh brown. *Song-flight* is complex; has an undulating aerial display flight similar to *rufescens* and raises a crest when singing. Song is interspersed with mimicry of other species' calls. *The nest* is a cup of dry grass, placed in a scrape, lined with soft material. No data on ramp or surround (data from Ali & Ripley 1983).

7. *S. conirostris.*

Plumage: streaked above, below rufous, lightly streaked on chest. *Face* patterned. *Bill* pink. *Legs and feet* pink. *Song* is simple: consists of 2–3 notes, '*si si si*' given in flight. No flight display. *The nest* is a cup of grass placed in a scrape in the ground, with an apron of grass extending out from the rim (data from Maclean 1970).

8. *S. sclateri.*

Plumage: streaked above, below buffy to rufous buff, streaked on chest. *Face* boldly patterned, with dark mark below eye. *Bill* brownish-pink. *Legs and feet* light brown. *Song* consists of 3 notes, '*trit trit trit*' given in flight. No flight display. *The nest* is a cup of grass with an apron, placed in a scrape in the ground (data from Hockey & Sinclair 1981, J. C. Sinclair, W.R.J.D.).

9. *S. fringillaris.*

Plumage: heavily streaked above, below buffy, heavily streaked on chest and flanks. *Face* patterned. *Bill* pink. *Legs and feet* pink. *Song* is simple: 2–3 element call '*chiree*' repeated several times, given in flight or on ground. No flight display. *The nest* is a cup of dry grass with an apron, placed in a scrape in ground (data from Allan *et al.* 1981).

10. *S. obbiensis.*

Plumage: streaked above, below greyish, streaked on chest and flanks. *Face* patterned. *Bill* pinkish-brown. *Legs and feet* pale brown. *Song* is simple, a '*tip tip*' flight call. No flight display in this species was observed by J. S. Ash in a brief study of breeding. *The nest* is a cup in a scrape in the ground (data from Ash 1981 and J. S. Ash).

11. *S. personata.*

Plumage: lightly streaked and mottled on back, below plain grey-brown on chest, rufous on belly. *Face* boldly patterned with black, forming a mask. *Bill* yellowish-horn. *Legs and feet* flesh white (data from Dean, in prep.).

12. *E. starki.*

Plumage: streaked above, below whitish, plain or lightly streaked. *Face* not patterned, but has bold white eye-ring. *Bill* whitish-horn. *Legs and feet* pinkish-white. *Song-flight* is complex: ascends into the air singing a simple mellow song '*prrr prrr preee preee prrr prrr preee preee . . .*' until it reaches a height of 6–10 m (even up to 200 m according to Willoughby 1971), where it continues to sing for several minutes as it hovers into the wind before dropping straight down to the ground. *The nest* is a cup of grass in a scrape, lacking both apron and ramp (data from Maclean 1970, Willoughby 1971).

13. *E. dunni.*

Plumage: lightly streaked on back, almost plain, whitish below, streaked dark on chest. *Face* boldly patterned, with dark brown to black moustachial and malar stripes and surround to cheeks, and white eye-ring. *Bill* yellowish-white. *Legs and feet* pale flesh. *Song-flight* is complex: rises into the wind to height of 30–50 m, and sings while remaining more or less in one place, swinging from side to side with slow, lazy wing-beats, effecting a floppy appearance. At end of song-flight it drops to the ground. The song is a series of short rambling phrases, given both in song-flight and on the ground. *The nest* is a scrape lined with fresh vegetation (data from de Naurois 1974, Cramp 1988).

Weights of birds collected in the Mutare Municipal Area, Zimbabwe

by H. D. Jackson

Received 29 September 1988

The Mutare Municipal Area, occupying c. 158 km^2, extends from c. 18°56′ to 19°02′S, and from c. 32°32′ to 32°42′E, so adjoining the Mozambique border. Altitude varies from c. 915 to 1740 m a.s.l. and there is a diversity of habitat ranging from moist montane evergreen forest in the northeast to dry *Acacia* thornveld in the southwest. The Mutare Museum has been conducting an avifaunal survey of this area, the results being reported in a series of papers by Jackson (1972, 1976, 1986, 1987a, 1987b, 1988).

Most of the birds collected were weighed on a triple-beam balance, usually to the nearest decigram. This paper provides a synthesis of the weight data, obtained from 2809 individuals of 209 species. Maclean (1985) gives no weights for 31 (**) of these species and less than 10 weights each for another 59 (*).

Mutare mean weights tend to be lighter than those given by Maclean (1985) for the whole of southern Africa, often more than 10% lighter (<), sometimes more than 25% so (≪). This is in agreement with Bergmann's Rule that, among the forms of a polytypic species, body-size tends to be larger in cooler parts of the total range and smaller in the warmer parts (Thomson 1964). Weight data in Maclean (1985) are unfortunately lumped geographically, except for the following species, all of which support Bergmann's Rule (mean weights in grams):

Anas smithii: Cape ♂♂ 688, ♀♀ 598; Transvaal ♂♂ 603, ♀♀ 572
Charadrius pecuarius: Cape 42.6; Transvaal 34

C. tricollaris: Cape 34; Transvaal 31.2
Tringa stagnatilis (Palaearctic visitor): Cape 75.1; Transvaal 58
Laniarius ferrugineus: South Africa ♂♂ 60.2, ♀♀ 57.5; Mozambique ♂♂ 50, ♀♀ 44.7
Telophorus zeylonus: South Africa 64.8; Zimbabwe/Mozambique border in the cool montane zone of the Chimanimani Mountains 69.0
Sporopipes squamifrons: Transvaal 12.4; Botswana 10.3
Serinus sulphuratus: Cape 28.7; Natal 25.8; Zimbabwe 21.1
S. gularis: Cape 22.7; Transvaal 20.1; Zimbabwe 15.2

The Cape to Zimbabwe cline accounts for the lightweight Mutare data, where *Coturnix delegorguei* is about the only species that apparently does not conform. Future revisions of *Roberts' Birds of Southern Africa* should take more notice of this cline.

In those species where at least 5 weights are available for each sex, the difference in mean weights between the sexes has been subjected to Student's t-test, the statistical significance being shown in brackets immediately after the species name. Breeding ♀♀ are not included in these comparisons as their increased weight could mask the true difference between the sexes. The results generally support Maclean's (1985) data, except for the *Cossypha* spp, where ♂♂ are clearly heavier than ♀♀, but Maclean lumps them together.

In the list that follows weights in grams are given by age (J = skull not fully ossified) and sex (o = indeterminate). Where 5 or more weights are available in any category, the mean, standard deviation and range are given. The diameter of the largest oocyte is shown in brackets immediately after the weight of a ♀ in breeding condition (B). Nomenclature and order follow Maclean (1985). DOR = Dead on road.

**Phalacrocorax carbo* ♂ 1700
***Ciconia abdimii* ♀ 1517
**Anastomus lamelligerus* ♀ 1016
≪*Phoenicopterus ruber* o 1538
≪**P. minor* ♀ 960
Milvus migrans ♂ 698
***Aviceda cuculoides* o 296
≪**Aquila verreauxii* ♂ 3000
Kaupifalco monogrammicus 5♂♂ 239.6 ± 12.4 (220–254); ♀♀ 277/285/342; oo 238/308/332
Accipiter ovampensis o 249
**A. minullus* ♂♂ 75.3/76.1; ♀ 101.2
A. badius ♀♀ 122/124
A. tachiro 5♂♂ 195.4 ± 18.0 (168–217.5); ♀♀ 302/381/394
<**Polyboroides typus* o 636
<*Falco tinnunculus* o 154
>**Coturnix delegorguei* ♂♂ 79.2/81.3/82.9/90.6; 8♀♀ 83.3 ± 7.5 (72.2–93.3)
**C. adansonii* ♂ 46.6
Numida meleagris ♀ 1429
<**Turnix sylvatica* ♂♂ 28.0/35.8; ♀ 32.8
***Crex egregia* ♂ 121
**Sarothrura rufa* ♀ 29.4
***S. boehmi* ♀ 21.4
***Porphyrula alleni* ♂♂ 132/134; ♀ 117
**Gallinula angulata* ♀ 92.4
<**Rostratula benghalensis* ♀ 110
Gallinago media ♂ 126
***Rhinoptilus chalcopterus* ♂♂ 160/168; ♀ 135

Chlidonias leucopterus o 43.1
Turtur chalcospilos (n.s.) 6♂♂ 65.9 ± 6.3 (58.5–77.0); 5♀♀ 60.3 ± 6.7 (50.2–68.8); B♀♀ 50.4 (3 mm)/65.7 (4 mm)
T. tympanistria ♂♂ 63.4/63.4/68.2/72.5; ♀♀ 63.8/65.5/66.7/82.5; B♀♀ 70.6 (3 mm)/70.6 (3 mm); J♂♂ 65.0/71.8
<**Aplopelia larvata* ♂ 146
**Treron calva* ♀ 215; B♀ 269 (2 mm)
**Cuculus gularis* ♀ 104
**C. solitarius* ♀♀ 66.5/66.5; o 70.0
***Chrysococcyx klaas* ♂♂ 26.4/27.4; o 38.6
C. caprius ♀♀ 33.8/37.3
**Centropus senegalensis* ♀ 141
C. superciliosus ♂ 168
**Strix woodfordii* ♂ 270.7
***Otus senegalensis* ♀♀ 60.1/61.6; o 49.2
<*Bubo africanus* ♂♂ 540/751; 5 ♀♀ 628 ± 113.9 (446–729); oo 623/713; J♀ 612
**Caprimulgus europaeus* ♂♂ 56.7/57.0/60.2; ♀ 74.0; oo 38.3 (DOR)/52.4
**C. pectoralis* (n.s.) 5♂♂ 45.0 ± 5.7 (37.4–51.7); 5♀♀ 47.2 ± 4.6 (41.2–53.2); B♀ 52.2 (2 mm); oo 42.7/43.8/45.6/49.7; J♂ 32.7
***C. tristigma* o 65.7
**C. fossii* ♂♂ 39.0/57.0; 7♀♀ 53.3 ± 10.1 (38.5–68.3); oo 32.8/40.0/45.6
Macrodipteryx vexillaria (n.s.) 9♂♂ 73.9 ± 8.5 (61.0–85.9); 13♀♀ 65.8 ± 11.3 (40.2–83.1); oo 61.3/72.2; J♂ 49.7
≪*Apus affinis* o 18.0
≪**A. aequatorialis* ♂ 59.7; ♀ 73.0
≪**Cypsiurus parvus* B♀ 14.3 (2 mm); o 8.6 (DOR)
Colius striatus ♂♂ 42.4/44.6/45.4/52.3; ♀♀ 38.4/44.2/46.5/46.7; B♀♀ 54.0 (2 mm)/55.7 (20 × 13 mm)
C. indicus ♂♂ 58.4/66.8; ♀♀ 48.4/51.5
<*Alcedo cristata* ♀ 15.1
Ispidina picta (n.s.) 20♂♂ 13.8 ± 1.3 (11.8–17.2); 13♀♀ 13.5 ± 1.2 (11.1–15.4); B♀ 15.8 (2 mm); oo 11.3/16.0
<**Halcyon senegalensis* ♂ 61.8
H. albiventris (n.s.) 9♂♂ 55.7 ± 3.8 (49.6–61.5); 6♀♀ 59.3 ± 7.2 (45.6–65.5); J♀ 51.4
H. leucocephala ♂♂ 33.6/39.8/42.4/58.1; o 43.4; 5J♂♂ 34.3 ± 3.6 (29.3–39.5); J♀♀ 33.3/38.2
H. chelicuti ♂42.7
Merops pusillus ♂♂ 11.0/12.4/14.7; ♀♀ 12.5/14.1/16.0/17.2; o 9.6
M. hirundineus ♂ 22.5
**Coracias garrulus* ♀ 136
**C. naevia* ♂♂ 157/167
***Tockus alboterminatus* ♂ 234
Lybius torquatus (n.s.) 14♂♂ 51.1 ± 2.7 (47.9–56.3); 14♀♀ 50.9 ± 2.2 (47.1–54.7); B♀ 50.8 (2 mm); oo 44.0/44.0/48.3
**Stactolaema whytii* ♂♂ 51.3/52.9/54.8; 7♀♀ 49.0 ± 7.7 (34.1–59.5)
<*Pogoniulus chrysoconus* ♂♂ 11.3/12.4/12.7/14.2; ♀♀ 11.4/12.3; J♀ 12.6
P. bilineatus ♂♂ 11.8/13.1/13.1; ♀♀ 13.8/15.1/16.6; o 13.7
<*Trachyphonus vaillantii* ♀ 61.6
Indicator indicator ♂ 49.7
***I. variegatus* ♂♂ 47.8/49.1; ♀♀ 35.6/47.3; B♀♀ 52.7 (3½ mm)/53.5 (5 mm); o 57.0
I. minor 6♂♂ 28.8 ± 1.5 (26.5–30.5); ♀♀ 24.1/27.8/28.2
>*Prodotiscus regulus* ♂ 17.6
Campethera abingoni ♂ 63.2; ♀ 64.6
≪*Thripias namaquus* ♀ 61.7
***Smithornis capensis* 6♂♂ 23.7 ± 1.8 (21.0–26.1); ♀♀ 17.4/21.8/23.9; J♂ 23.9
**Mirafra africana* ♂ 42.1; J♂ 28.2
***M. rufocinnamomea* ♂ 26.0
Hirundo rustica ♂ 16.8
**Delichon urbica* ♂ 19.8
**Pseudhirundo griseopyga* oo 9.7/9.8
Psalidoprocne orientalis ♂11.9
**Campephaga flava* ♂♂ 31.6/32.9

≪*_Dicrurus adsimilis_ ♂♂ 38.1/39.6/42.4; ♀ 23.7
*_Oriolus auratus_ o 79.4
<*_O. larvatus_ ♂♂ 59.6/63.3; o 59.3
Corvus albus 5♀♀ 519.2 ± 62.2 (421–581)
**_C. albicollis_ ♀ 865; o 762
<_Parus niger_ ♂♂ 19.7/19.8/19.8/21.0; ♀♀ 17.2/17.7/18.5
*_Anthoscopus caroli_ ♂ 6.5; ♀♀ 6.2/6.9
**_Turdoides jardineii_ ♂ 70.6; ♀ 56.3
Pycnonotus barbatus ($p < 0.001$) 50♂♂ 40.4 ± 2.3 (35.4–44.7); 30♀♀ 36.7 ± 2.9 (29.3–42.3); 6B♀♀ (2 mm) 37.0 ± 3.9 (31.9–42.6); B♀♀ 38.6/39.8 (3 mm)/42.4 (4 mm)/40.7 (5 mm)/37.8 (6 mm)/41.1 (9 mm)/44.3 (12 mm)/44.8 (22 × 14½ mm)/41.8 (25 × 16 mm); o 35.0; J♂ 32.0; 5J♀♀ 35.2 ± 2.1 (33.3–38.6)
Phyllastrephus terrestris ($p < 0.001$) 51♂♂ 33.9 ± 2.7 (29.5–40.5); 40♀♀ 28.5 ± 2.4 (24.3–33.3); B♀♀ 30.4 (8 mm)/30.5 (3 mm)/30.8 (2 mm)/35.3 (6 mm); 8 oo 30.5 ± 3.4 (27.0–37.3); J♂ 35.5; J♀♀ 25.4/27.1/30.9; Jo 27.7
P. flavostriatus ($p < 0.001$) 15♂♂ 33.9 ± 2.5 (30.8–39.8); 7♀♀ 25.4 ± 2.3 (21.4–28.0)
Andropadus importunus ♂♂ 31.2/31.3; ♀♀ 24.3/24.8/24.8/28.6; B♀♀ 25.6 (3 mm)/25.7 (2½ mm); J♀♀ 25.5/25.7
A. milanjensis ($p < 0.001$) 40♂♂ 38.7 ± 2.7 (34.6–45.9); 18♀♀ 36.1 ± 2.4 (32.8–40.8); 12B♀♀ 38.0 ± 2.3 (35.3–43.9) (2–6 mm)
Chlorocichla flaviventris ($p < 0.001$) 21♂♂ 42.0 ± 3.8 (34.5–51.2); 12♀♀ 36.9 ± 2.5 (31.9–39.6); B♀♀ 36.2 (2 mm)/39.4 (2½ mm)/39.4 (8 mm); J♂♂ 39.2/40.2; Jo 34.7
<_Turdus libonyana_ ♂♂ 46.2/52.3/59.4/64.5; ♀♀ 50.8/59.3; J♀ 64.3; Jo 59.3
≪_T. olivaceus_ ♂♂ 61.8/62.5
Cercomela familiaris ♂ 21.0; ♀ 19.5
*_Thamnolaea cinnamomeiventris_ ♀ 46.7
Saxicola torquata ♂ 15.8; ♀ 13.5
Cossypha heuglini ($p < 0.001$) 14♂♂ 37.5 ± 3.7 (30.5–44.1); 10♀♀ 32.3 ± 1.9 (29.1–35.9); B♀♀ 34.1 (2 mm)/34.6 (5 mm)/41.9 (23 × 17 mm); oo 26.7/27.6; J♂ 32.4; J♀♀ 25.3/30.7/33.1
*_C. natalensis_ ($p < 0.001$) 25♂♂ 31.5 ± 2.4 (28.3–39.8); 14♀♀ 28.7 ± 2.3 (24.4–33.0); B♀ 30.3 (3 mm); J♂♂ 28.2/29.4/32.9/35.6; J♀ 31.4
C. caffra ♂♂ 27.7/28.1/28.9; ♀♀ 22.7/23.8/24.3/25.9
C. humeralis ($p < 0.01$) 14♂♂ 22.4 ± 1.5 (20.2–24.7); 8♀♀ 20.1 ± 1.5 (19.0–23.1); B♀ 25.8 (2 mm); o 24.1; J♂♂ 19.3/20.1/22.6
Pogonocichla stellata 6♂♂ 21.2 ± 2.9 (16.7–24.2); ♀ 22.1; o 17.6; 6Joo 20.0 ± 1.1 (18.0–21.1)
**_Pinarornis plumosus_ ♂ 65.8
<_Erythropygia leucophrys_ (n.s.) 14♂♂ 17.0 ± 2.1 (12.9–20.3); 5♀♀ 16.0 ± 1.1 (15.0–17.9); J♂ 18.6; J♀♀ 17.0/22.1
E. quadrivirgata (n.s.) 20♂♂ 26.6 ± 2.4 (23.4–30.7); 12♀♀ 25.6 ± 2.9 (21.2–31.2); B♀ 26.2 (12 mm); J♂ 26.4; J♀ 23.6
Sylvia borin (n.s.) 36♂♂ 19.5 ± 2.6 (15.3–29.2); 22♀♀ 18.5 ± 1.5 (15.1–21.2); J♂ 19.5
**_Hyliota australis_ ♂ 12.4; ♀ 12.3
Acrocephalus palustris ♂♂ 11.2/11.5/12.9; ♀♀ 10.4/11.7/12.8
Phylloscopus trochilus (n.s.) 6♂♂ 9.1 ± 2.2 (7.1–13.2); 14♀♀ 8.0 ± 0.8 (6.6–9.3); oo 6.4/7.3/7.5; J♂♂ 8.2/9.7; J♀♀ 8.3/8.8/8.9
Apalis thoracica (n.s.) 10♂♂ 10.1 ± 0.8 (9.1–11.3); 13♀♀ 9.9 ± 0.9 (8.3–11.5); oo 9.2/9.6/9.8; J♂ 10.5; J♀ 9.6
A. chirindensis ♂♂ 7.6/7.9/8.1/8.9; B♀ 7.5 (2 mm)
*_A. flavida_ ♀♀ 7.3/7.4
**_Sylvietta whytii_ 5♂♂ 10.0 ± 0.5 (9.1–10.4); ♀♀ 9.7/10.1; B♀ 9.2 (2 mm); o 10.0; J♀ 10.1
S. rufescens 6♂♂ 11.3 ± 0.8 (10.1–12.7); ♀♀ 9.2/10.9/12.4
*_Eremomela icteropygialis_ ♂ 7.6; ♀ 7.0
**_E. scotops_ ♂ 9.2
Camaroptera brachyura ($p < 0.05$) 20♂♂ 10.8 ± 0.7 (9.2–12.1); 13♀♀ 10.2 ± 0.7 (9.1–11.5); B♀ 9.0 (2 mm)/9.7 (2 mm); o 8.2
**_C. stierlingi_ ♂♂ 12.3/13.4/14.0; ♀ 13.1; J♀ 10.6; Joo 10.7/11.5/12.1/13.9
Sphenoeacus afer ♂♂ 32.3/51.5(?); ♀ 28.3; B♀ 33.7 (oviduct egg broken)
Cisticola lais ♂♂ 13.4/14.0/15.6; ♀ 10.8
C. chiniana ♂ 19.6; ♀ 12.8; o 12.4
*_C. cantans_ ♂♂ 11.1/12.1/12.6; B♀ 10.2 (2 mm); o 10.2

<_C. erythrops_ ♂♂ 13.7/14.9/16.4; ♀♀ 12.2/12.6/12.7/14.2
*_C. natalensis_ ♂ 24.8; ♀15.7; o 14.5
C. aberrans 8♂♂ 15.3 ± 0.9 (14.1–16.9); ♀♀ 12.4/12.7/13.9
C. fulvicapilla ♂♂ 8.4/9.1; B♀ 8.1 (4 mm); J♂♂ 8.5/8.6/9.4
**_Heliolais erythroptera_ ♂♂ 12.4/13.0; ♀♀ 10.6/12.0/12.3
Prinia subflava (n.s.) 7♂♂ 9.3 ± 0.7 (8.1–10.2); 5♀♀ 8.5 ± 0.9 (7.1–9.6); B♀♀ 8.3 (5 mm)/10.4 (14 × 10 mm); Jo 8.8
P. robertsi ♂ 9.5; ♀ 8.3
Muscicapa striata ♂♂ 13.6/14.7/16.0; ♀♀ 14.1/14.1; o 13.9; J♀ 17.7
*_M. adusta_ ♀ 9.6
**_M. caerulescens_ 7♂♂ 17.4 ± 1.2 (15.2–18.4); ♀♀ 16.3/16.4/16.4; J♂♂ 15.2/18.4; J♀ 13.8
**_Melaenornis pallidus_ ♂♂ 22.3/23.2; ♀ 21.1
Batis capensis (n.s.) 13♂♂ 11.5 ± 1.3 (9.3–14.2); 16♀♀ 11.2 ± 1.0 (9.6–12.9); o 11.3; J♂ 11.4; Joo 10.4/10.9/11.4/11.5
<_B. molitor_ (n.s.) 6♂♂ 10.3 ± 1.0 (9.1–11.7); 7♀♀ 10.1 ± 0.7 (9.3–11.2); oo 9.0/11.9; J♂♂ 10.0/10.2; J♀ 9.9; Jo 10.1
*_Trochocercus albonotatus_ ♂♂ 8.2/8.3; ♀ 7.0; oo 7.1/7.1/7.9
<_Terpsiphone viridis_ 9♂♂ 13.3 ± 1.1 (11.1–14.7); ♀♀ 11.6/12.7/13.6; o 12.6; J♂♂ 12.4/13.8
*_Anthus similis_ ♂♂ 23.8/25.1
**_A. vaalensis_ ♀ 29.7
A. lineiventris ♂♂ 30.3/34.8; ♀♀ 31.8/34.8
*_A. trivialis_ ♀♀ 21.4/21.7
Lanius collaris ♂♂ 39.8/41.4; ♀ 41.2; J♂♂ 29.2/30.0/38.4; J♀♀ 35.6/38.4; Jo 20.3
L. collurio ♂♂ 24.1/32.8; ♀♀ 24.5/27.4; o 30.2
*_Laniarius aethiopicus_ ($p<0.05$) 8♂♂ 51.2 ± 4.3 (42.4–55.5); 6♀♀ 46.3 ± 3.9 (40.1–50.3); B♀ 51.1 (2 mm)
*_Dryoscopus cubla_ ($p<0.002$) 12♂♂ 27.4 ± 1.8 (23.6–29.8); 11♀♀ 24.9 ± 1.5 (23.2–28.7); B♀ 30.8 (8 mm); J♂♂ 24.1/25.6/28.7/30.8; J♀♀ 20.6/26.6
*_Nilaus afer_ J♀ 22.5
Tchagra australis 9♂♂ 34.9 ± 5.3 (30.6–45.8); ♀ 31.1; B♀♀ 29.6 (3 mm)/32.9 (6 mm); J♂ 29.3; J♀ 30.9
*_T. senegala_ B♀ 61.8 (12 mm); J♀ 54.6
*_Telophorus quadricolor_ 5♂♂ 36.5 ± 4.5 (29.6–40.5); ♀♀ 37.5/37.8; J♀ 32.7; Jo 33.8
T. sulfureopectus ♂♂ 27.8/28.5; ♀♀ 25.1/27.8/30.2
*_T. olivaceus_ 5♂♂ 34.4 ± 2.8 (31.1–37.9); ♀♀ 26.2/28.1/32.4/36.1; B♀ 35.8 (2 mm)
**_Malaconotus blanchoti_ ♂ 75.9; ♀ 72.3
Prionops plumatus ($p<0.05$) 16♂♂ 31.9 ± 2.6 (27.3–35.8); 17♀♀ 34.4 ± 3.4 (29.7–40.7); B♀ 39.2 (7 mm); J♂♂ 26.1/33.8/38.7; J♀ 31.4
P. retzii ♂♂ 37.9/42.5; ♀♀ 46.4/46.7
*_Cinnyricinclus leucogaster_ ♂♂ 39.5/48.2; ♀♀ 45.5/55.6
**_Onychognathus morio_ ♂ 125; ♀ 146; o 120
<_Nectarinia famosa_ 5♂♂ 15.3 ± 1.0 (14.3–16.5); ♀♀ 11.5/12.4/15.0
*_N. kilimensis_ ♂ 18.0
N. manoensis ($p<0.002$) 15♂♂ 9.8 ± 1.0 (8.4–12.8); 8♀♀ 8.4 ± 0.8 (7.4–9.3); oo 8.6/8.7; J♂ 8.5; J♀ 8.9
N. venusta (n.s.) 27♂♂ 7.0 ± 0.7 (5.4–9.0; 15♀♀ 6.7 ± 0.8 (5.3–8.5); 5B♀♀ 6.4 ± 0.6 (5.6–7.1) (2–2½ mm); 9oo 6.9 ± 0.8 (6.0–8.1); J♂♂ 6.7/6.9; J♀♀ 6.5/7.4
N. talatala ♂♂ 6.7/8.0; ♀ 6.0
N. olivacea ($p<0.001$) 20♂♂ 10.5 ± 0.8 (9.2–12.4); 19♀♀ 9.4 ± 0.7 (8.0–10.5); 8B♀♀ 9.8 ± 0.8 (8.2–10.5) (2–2½ mm); oo 8.6/9.5/10.3/10.1; J♂♂ 10.5/11.5; J♀ 8.8
N. senegalensis ♂♂ 13.7/14.2; ♀♀ 11.2/12.0/13.8; oo 11.7/13.0/13.0
<_N. amethystina_ ($p<0.01$) 23♂♂ 11.0 ± 1.0 (9.2–12.8); 11♀♀ 9.8 ± 1.0 (8.3–11.4); 16oo 10.1 ± 1.1 (8.3–12.5); J♂♂ 11.2/11.3/11.8
Anthreptes collaris ($p<0.05$) 10♂♂ 8.3 ± 0.7 (7.0–9.3); 5♀♀ 7.4 ± 0.7 (6.5–8.3); o 7.6; J♀ 7.2
Zosterops senegalensis (n.s.) 17♂♂ 9.8 ± 0.9 (8.1–10.9); 20♀♀ 9.4 ± 0.8 (8.1–10.8); B♀♀ 11.0 (6½ mm)/11.3 (2 mm)/11.6 (7 mm)/11.8 (3 mm); J♂ 8.6; J♀ 10.0; Jo 10.1
Passer domesticus ♂ 23.7; o 16.8
<_Petronia superciliaris_ ♂♂ 21.0/23.4/25.9; ♀♀ 23.4/26.0
<_Amblyospiza albifrons_ ♂ 43.3; ♀ 31.4; oo 29.6/64.4

<*Ploceus ocularis* 6♂♂ 25.0 ± 1.9 (21.6–27.2); ♀♀ 21.7/22.6/24.6; B♀♀ 23.4 (2 mm)/26.9 (6 mm); J♀ 23.7

<*P. cucullatus* ($p<0.001$) 12♂♂ 35.6 ± 4.0 (29.2–41.7); 23♀♀ 30.6 ± 2.4 (26.8–38.3); 5B♀♀ 30.5 ± 2.3 (27.5–33.6) (2–3 mm)/35.2 (19 × 12 mm); 8J♂♂ 34.0 ± 3.3 (28.5–37.7); J♀♀ 29.3/29.7/30.6/30.8; Joo 25.6/27.6/38.6

**P. xanthops* ♂♂ 46.2/47.8; ♀♀ 36.3/38.3/39.3; B♀ 34.6 (2 mm); oo 35.0/37.4/40.2

***Anaplectes rubriceps* ♂ 24.6

Quelea quelea ($p<0.001$) 138♂♂ 19.2 ± 1.5 (15.2–22.8); 138♀♀ 18.0 ± 1.3 (13.7–21.2); 5B♀♀ 16.8 ± 2.8 (12.6–19.2) (2 mm); 8B♀♀ 17.5 ± 1.4 (14.9–19.1) (3 mm); 4B♀♀ 18.0 ± 0.6 (17.1–18.5) (4 mm); 5B♀♀ 18.4 ± 2.1 (15.4–20.7) (5 mm); B♀♀ 18.5 (6 mm)/17.2 (7 mm)/20.3 (8 mm); o 19.6

<*Euplectes orix* ($p<0.001$) 8♂♂ 18.6 ± 1.3 (16.2–20.6); 15♀♀ 16.5 ± 1.0 (14.3–18.0); J♂♂ 14.3/18.2

**E. hordeaceus* B♀ 18.8 (2 mm)

***E. capensis* ($p<0.001$) 17♂♂ 20.0 ± 1.1 (17.7–21.9); 19♀♀ 16.2 ± 1.2 (12.8–19.1); B♀ 18.9 (4 mm); 6oo 15.8 ± 2.0 (16.3–18.1); J♂ 17.6; 5J♀♀ 16.7 ± 1.6 (15.1–19.2); Jo 20.9

<*E. ardens* ($p<0.001$) 76♂♂ 18.6 ± 1.5 (15.6–23.3); 100♀♀ 16.0 ± 1.2 (13.1–19.3); 10B♀♀ 16.3 ± 1.5 (13.1–18.7) (2–5 mm); B♀♀ 16.7 (15 × 11 mm)/17.8 (20.5 × 14 mm)/18.3 (25 × 11 mm); 9oo 15.9 ± 1.7 (14.5–18.7); 8J♂♂ 17.0 ± 3.1 (11.7–21.7); J♀♀ 15.2/15.2/15.4/15.4; Jo 18.8

**Pytilia afra* ♀ 15.5

<*P. melba* (n.s.) 19♂♂ 13.4 ± 1.2 (10.7–15.3); 14♀♀ 13.4 ± 1.7 (10.0–15.4); B♀♀ 12.4 (3 mm) 13.2 (2 mm)/14.4 (6 mm)/14.6 (2 mm)/16.2 (12 × 9 mm); J♂ 13.7; J♀♀ 13.4/15.0

Mandingoa nitidula 7♂♂ 8.8 ± 0.5 (8.3–9.7); ♀♀ 8.1/8.6/9.3/9.8; 5B♀♀ 9.8 ± 1.0 (8.6–11.2) (2–4 mm); J♂♂ 8.6/9.8; Jo 8.5

Cryptospiza reichenovii 8♂♂ 12.9 ± 1.0 (11.6–14.3); ♀♀ 12.2/13.3/15.2; B♀♀ 13.8 (2 mm)/14.0 (2½ mm)/15.0 (7 mm)/17.1 (3 mm)

**Hypargos niveoguttatus* (n.s.) 21♂♂ 15.1 ± 0.9 (13.2–17.1); 20♀♀ 14.8 ± 1.4 (12.5–17.9); B♀♀ 13.4 (2 mm)/16.2 (4 mm)/16.3 (3 mm); 7oo 13.6 ± 1.2 (11.4–15.3); J♂♂ 14.3/14.3; J♀ 14.7

Lagonosticta rubricata 6♂♂ 9.9 ± 0.8 (9.0–11.2); ♀♀ 8.0/8.6/11.2/11.7; B♀♀ 8.8 (5 mm)/10.2 (4 mm); 12oo 10.3 ± 0.8 (8,7–11.6)

L. rhodopareia (n.s.) 10♂♂ 8.9 ± 0.6 (7.5–9.5); 6♀♀ 8.7 ± 0.9 (7.1–9.5); B♀♀ 7.4 (2 mm)/9.0 (5 mm)/10.1 (5 mm)

<*L. senegala* ♂♂ 6.0/7.4; ♀ 8.8

<*Uraeginthus angolensis* (n.s.) 21♂♂ 9.0 ± 1.0 (6.8–10.9); 12♀♀ 9.0 ± 0.9 (8.3–10.3); B♀♀ 10.3 (4 mm)/11.2 (13 × 9 mm)/12.3 (2 mm)/11.8 (15 × 9 mm); oo 7.2/8.0

<*U. granatinus* ♂♂ 8.6/9.9/10.3/12.2; B♀ 10.8 (2 mm); oo 8.6/9.0; Joo 9.6/10.4

<*Estrilda astrild* ♂ 7.5; ♀♀ 6.5/7.3/8.3/8.3; B♀♀ 7.5 (3 mm)/9.0 (2 mm); oo 6.4/6.8/7.2/8.1; J♂ 8.4; J♀♀ 7.4/7.8/8.1/8.2

***E. perreini* ♂♂ 7.2/7.6; ♀ 7.5; oo 6.1/7.1/9.0

***E. quartinia* ♂♂ 5.7/6.2; B♀♀ 7.0 (2 mm)/7.2 (3 mm)

Sporaeginthus subflavus ♂ 7.3; o 7.0

<*Spermestes cucullatus* ♂♂ 8.2/9.1/9.2/9.6; 5♀♀ 8.7 ± 0.6 (8.1–9.5); 17oo 8.6 ± 1.1 (6.2–10.2); J♂ 8.1; J♀♀ 7.1/9.3; Joo 6.6/7.4/8.7/9.0

S. bicolor ♂♂ 8.4/8.9/9.1/9.3; 6♀♀ 8.6 ± 0.7 (8.0–9.8); oo 8.0/8.5; J♂ 8.5

***S. fringilloides* ♂♂ 16.1/17.4/18.9; ♀♀ 16.2/17.0

Vidua macroura ♀ 13.8

V. paradisea B♀ 22.2 (3 mm)

V. purpurascens ♀♀ 12.5/13.5/13.7; B♀ 11.7 (6 mm)

<*Serinus mozambicus* (n.s.) 11♂♂ 11.4 ± 1.2 (9.3–12.8); 17♀♀ 11.6 ± 0.8 (10.0–13.3); B♀♀ 10.1 (4 mm)/11.2 (5 mm); oo 10.0/10.0/10.3/10.4; J♂ 12.4; J♀♀ 10.2/10.7

S. sulphuratus ♂ 16.6; ♀♀ 17.4/17.5/21.8; 5oo 19.3 ± 1.5 (17.5–21.6)

S. gularis ♂♂ 14.3/14.5/16.8; 5♀♀ 15.9 ± 3.4 (10.5–19.5)

**S. mennelli* J♂ 15.1

**Emberiza cabanisi* ♂ 22.3

E. flaviventris (n.s.) 5♂♂ 18.5 ± 2.0 (15.1–20.5); ♂♂ 28.3(?)/28.4(?); 5♀♀ 17.6 ± 1.0 (16.1–18.5); B♀♀ 18.3 (2 mm)/21.2 (10 mm); J♀ 18.1

E. capensis ♂ 18.2

E. tahapisi ♂ 13.2; B♀ 14.5 (2 mm)

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The correct name of the Terek Sandpiper

by Burt L. Monroe, Jr.

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The recent trend of merging most forms of tringine sandpipers into the single genus *Tringa* has produced a case of *apparent* secondary homonymy in the Terek Sandpiper. Often recognized in a monotypic genus as *Xenus cinereus*, this species is now frequently placed in *Tringa*, producing the name *Tringa cinerea* in apparent conflict with the older *Tringa cinerea* Brünnich 1764, a synonym of *Calidris canutus* (Red Knot). The original description of the Terek Sandpiper was based on *Scolopax cinerea* Güldenstädt 1775; the next available name is *Scolopax terek* Latham 1790.

It should be pointed out that this is *not* a case of secondary homonymy, inasmuch as both species' descriptions as '*cinerea*' were allocated to different genera (*Scolopax* and *Tringa*, respectively, for the Terek Sandpiper and Red Knot) and are currently placed in different genera (*Tringa* and *Calidris*, respectively); at no time have both species been concurrently placed in the same genus, thus no secondary homonymy exists. This case is precisely the same as the one in America of the Blackpoll Warbler: originally described as *Muscicapa striata* Forster 1772, the Blackpoll Warbler is now recognized as *Dendroica striata*, the name unaffected by the presently recognized *Muscicapa striata* (Spotted Flycatcher) based on *Motacilla striata* Pallas 1764 (see Lowery & Monroe *in* Peters (1968) *Check-list of Birds of the World*, 14: 32, footnote). In both cases, there was no instance of concurrent homonymy, thus no secondary homonymy exists and the original names must stand. The Terek Sandpiper is properly known as *Tringa cinerea* or *Xenus cinereus,* depending on one's generic viewpoint.

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Chestnut-cheeked Starling *Sturnus philippensis*: a first record for mainland South-East Asia

by D. Parish & C. Prentice

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Whilst examining a flock of over 400 Purple-backed Starlings *Sturnus sturninus* feeding in a tree in the garden of the Asian Wetland Bureau office in Section 12, Petaling Jaya, Selangor State, Peninsular Malaysia (3°06′N, 101°39′E) on 21 January 1988, we independently noticed an individual with rufous-chestnut cheek patches sitting with them on a branch c. 6 m above ground level.

After c. 15 minutes, the flock took flight, flying c. 200 m to other trees nearby. A number returned, but the unusual bird was not seen again. Purple-backed Starlings were observed in the area regularly over the next 2 weeks, but never in such large numbers and the bird with chestnut cheeks was not seen again.

Whilst under observation for c. 10 minutes, a detailed plumage description was made, and the bird was compared with illustrations and descriptions in King *et al.* (1975). The bird in general matched the description for the adult male Purple-backed Starling, but clearly showed chestnut cheeks, ear coverts and sides of the neck and had dusky grey flanks and no pale tips to the greater coverts. It was not possible to determine conclusively whether or not there was a purple nape patch owing to the angle of view. No discernible call was heard.

These observations enabled us to identify the bird as an adult male *Sturnus philippensis*—English names: Red-cheeked Myna (Wild Bird Society of Japan 1982), Violet-backed Starling (Smythies 1981) or Chestnut-cheeked Starling (White & Bruce 1986, Meyer de Schauensee 1984). This species is similar to but slightly larger than the Purple-backed Starling, and the chestnut cheeks, sides of neck and upper breast, together with a single white wing bar (median coverts white), dusky flanks and no purple nape-patch are diagnostic.

During the breeding season, *S. philippensis* occurs in northern Japan and southern Sakhalin (Wild Bird Society of Japan 1982, White & Bruce 1986, Meyer de Schauensee 1984). In the non-breeding season it occurs in the Ryu Kyu Islands and the Philippines, and is an irregular winter visitor to northern Borneo, not recorded south of the Kuching area in Sarawak (Smythies 1981). It has also been recorded in northern Sulawesi, Bacan and Siau in Indonesia (White & Bruce 1986). There are 3 records from Hong Kong (Chalmers 1986); and in China the species is noted as "Transient through eastern China from Shaweishan Is. off Kiangsu southward through Fukien; winters on Lanyu Is.; vagrant in Taiwan" (Meyer de Schauensee 1984). The species has not been recorded in Thailand (P. D. Round).

Coinciding with the present sighting, R. Subharaj tells us he observed a single *S. philippensis* in Singapore on 8 December 1987, also in the company of Purple-backed Starlings. It has not been recorded previously in Singapore.

Prior to these 2 records, *S. philippensis* had not been recorded on the Malay Peninsula or elsewhere in mainland South-East Asia. It must be noted, however, that there is a possibility that the birds were escapes, although none of the bird traders contacted in Petaling Jaya admitted to handling this species. Juvenile *S. sturninus* are, however, imported into Malaysia from China in spring.

Acknowledgements

The authors are grateful to Dr David Wells and Dennis G. C. Yong for their comments, and to R. Subharaj for information on his sighting.

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Type specimens of *Prinia subflava* (Gmelin) and *Prinia fluviatilis* Chappuis

by C. Chappuis, C. Erard & G. J. Morel

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In a paper presented at the 7th Pan-African Ornithological Congress (Chappuis, Erard & Morel, in press), we discuss the morphological, acoustical and ecological separation between Tawny-flanked and River Prinias *Prinia subflava* and *P. fluviatilis,* with notes on their geographical distribution. We also show that some morphological differences exist between *fluviatilis* populations from Chad and from Senegal; however, further study is needed to determine whether this geographical variation is a clinal one or concerns 2 separate subspecies.

A problem is that neither Chappuis (1974) nor Chappuis, Erard & Morel (in press) mention any type specimen for *Prinia fluviatilis*. The original description was based on 3 specimens. For practical reasons, it seems advisable, indeed necessary, to designate the following specimen as a lectotype: adult ♂, tape recorded and collected on 18 Jun 1972 by C. Chappuis at Fort Lamy (= N'Djamena), Chad, registered in the Muséum National d'Histoire Naturelle, Paris, No. C.G.1979–654.

The other 2 syntypes (=paralectotypes) are 2 adult ♂♂, also tape recorded and collected at Fort Lamy: one on 18 Jun 1972, coll. C. Chappuis, No. C.G.1979–655, and one on 10 Oct 1972, coll. C. Chappuis & C. Erard, No. C.G.1979–656.

The existence in Senegal of both *P. subflava* and *P. fluviatilis* might raise some nomenclatural problems. Indeed, 2 names have been applied to 'Tawny-flanked' Prinias in that country: *Motacilla subflava* Gmelin and *Drymoica superciliosa* Swainson. It is thus necessary to make clear what these latter 2 names designate.

Gmelin (1789, in *Systema Naturae* 1: 982) based his description of *Motacilla subflava* on the "Figuier blond du Sénégal" in Daubenton's *Planches Enluminées* (1765–81, pl. 584, fig. 2); but unfortunately no reference was made to a particular specimen for that plate. *Drymoica superciliosa* Swainson (1837, *Birds of Western Africa* 2, Jardine, ed., Naturalist's Library, 19, Ornith.8:40, pl. 2) is also described from Senegal and based on a plate, without specification of a specimen (pers. comm. from the late C. W. Benson). As plates cannot be properly identified as to species, specimens are a pre-requisite for the distinction between *subflava* and *fluviatilis*. In order to avoid any confusion in the future, it seems necessary to designate a neotype for *Motacilla subflava* Gmelin. This specimen must have been definitely identified by song and come from the type locality "Senegal". Therefore we propose the following specimen as neotype: adult ♂, tape recorded and collected on 19 Aug 1987, 35 km south of Linguère, Senegal, by G. J. Morel, registered in the Muséum National d'Histoire Naturelle, Paris, No. C.G.1988–607.

We follow the established usage, e.g. White (1962) and Traylor (1986), and keep *Drymoica superciliosa* Swainson as a synonym of *Prinia subflava* (Gmelin).

Details on colouration and measurements of both species are given in Chappuis, Erard & Morel (in press). We may simply mention here that *P. fluviatilis* can be distinguished from sympatric *P. s. subflava* and *P. s. pallescens* by its greyer upperparts, much whiter, less buff underparts, and particularly by a quite different tail-length/wing-length ratio; wing-length is the same in both species, but *P. fluviatilis* has a longer tail than *P. subflava*.

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Range extensions of some bird species of Cameroon

by Jeremy D. Wilson

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During the 3 months Jul–Sep 1985, D. Reavey, C. W. A. Dee, K. Chapman, R. J. Cameron and I carried out a survey of the status of the montane forest avifauna of Mount Oku (6°15′N, 10°26′E) in the Bamenda Highlands of Cameroon, under the auspices of the International Council for Bird Preservation and the University of Oxford (Wilson 1987). In the course of this study, and during travel within Cameroon, observations were made which represent extensions of the known range of a number of species, and these are presented here. Two species are recorded for the first time in Cameroon. All co-ordinates are taken from Louette (1981). References to Louette are all from that same source.

HAMERKOP *Scopus umbretta*

One bird, of undetermined race, was seen at Lake Oku on 29 Jul. Louette lists *S. u. umbretta* as resident from the Adamawa Plateau northwards and *S. u. minor* as a dry season visitor, breeding in coastal areas of Cameroon and leaving the country to the west between Jul and Dec. Our record is extralimital to both these ranges.

OVAMPO SPARROWHAWK *Accipiter ovampensis*

A single adult was seen at Ngaoundere (7°19′N, 13°35′E) on 5 Sep. Louette lists only one record from Cameroon, of a bird collected Sep 1936, but also lists this species from Bouar, Central African Republic (5°57′N, 15°36′E), which Bannerman (1930) gives as a locality in eastern Cameroon. Our record is therefore only the second or third for Cameroon.

TAWNY EAGLE *Aquila rapax*

Single adults were seen at 2000 m on Mount Oku on 29 Jul and 24 Aug. Louette lists *A. r. belisarius* as "a common raptor in northern Cameroon", but I can find no record of this species from the Bamenda Highlands and the only record of Stuart (1986) from this region of Cameroon was at 2100 m on Mount Manenguba (5°00′N, 9°50′E) in Feb 1984.

LESSER KESTREL *Falco naumanni*

One adult male was seen at Ngaoundere on 7 Sep. Bannerman (1930) and Louette list no records from Cameroon, but Louette noted that this species had been recorded in neighbouring Chad and expected that it would be found in Cameroon. Bannerman (1953) records the Lesser Kestrel as "common" on the Bauchi Plateau, Nigeria (10°16′N, 9°50′E), Oct–Mar; so it is clear that this Palaearctic migrant does winter in this part of west Africa. Our record appears to be the first for Cameroon.

FOX KESTREL *Falco alopex*

Single birds were seen at 1800 m on Mount Oku on both 27 Jul and 23 Aug. T. Gullick has since recorded 3 birds on Mount Oku, 14–15 Feb 1987. Louette lists this species only from the dry savanna in the north of Cameroon and considers a record from near Bamenda (5°56′N, 10°10′E) in Bannerman (1930) to be "questionable". However, Bannerman (1953) also lists this species from Bambulue (5°50′N, 10°20′E) and Stuart (1986) recorded it in the Bamenda Highlands in March 1984. The range of the Fox Kestrel, therefore, extends much further southwest than was previously thought.

AFRICAN WOOD PIGEON *Columba unicincta*

Four birds were seen in the forests around Lake Oku (2200 m) between 26 Jul and 25 Aug. This secretive forest species was not recorded in the Bamenda Highlands by Stuart (1986) and is not generally considered to be a bird of montane habitats, although Mackworth-Praed & Grant (1970) state it to be a bird of "highland forest". Previously, Serle's (1954) record of this species from Mount Kupe (4°47′N, 9°43′E) at 5000 ft (1520 m) was the highest altitude at which it had been observed in Cameroon.

LAUGHING DOVE *Streptopelia senegalensis*

Two birds were seen in the Oku forests between 26 Jul and 25 Aug and a third at Bamenda on 12 Aug. Louette lists this species as occurring from the Adamawa Plateau northwards and Bannerman (1931) records it as occurring from Ngaoundere northwards. Although Germain *et al.* (1973) observed it as far south at 5°45′N, Stuart (1986) did not record it from the Bamenda Highlands and the only record from this area is that of Serle (1965) at 4500 ft (1370 m) in the Sabga Pass (6°01′N, 10°19′E), Nov 1956. Our records therefore represent an extension of known range.

GREY-HEADED KINGFISHER *Halcyon leucocephala*

One was seen at Bamenda on 18 Jul. Serle (1950) reported a "rush of migrants of this species" at Kumba (4°38′N, 9°25′E) during early Dec 1947 and noted that a few individuals of this species spent the dry months in that vicinity, but that none was seen during the rains. Louette lists this species as present throughout Cameroon during the dry season but restricted to north of 10°N during the rains Jul–Oct. Stuart (1986) had a record from Mount Oku in Mar–Apr 1984 and T. Gullick noted one at the same locality on 14–15 Feb 1987. In this context, our record as far south as Bamenda during the height of the wet season is noteworthy.

GREY-RUMPED SWALLOW *Hirundo griseopyga*

Small flocks were seen near Bamenda on 14 Aug and over the agricultural land below Lake Oku during late Aug. Bannerman (1939, 1953) lists records from 3 localities on the Adamawa Plateau and northwards and Louette lists this species from the Adamawa Plateau and Benue Plain, but notes that it "could possibly turn up anywhere". Stuart's (1986) only record was at 2000 m on Mount Manenguba in Feb 1984 and Hall & Moreau (1970) do not record this species from any montane area of Cameroon. Our records may therefore be the first for the Bamenda Highlands.

WHITE-THROATED SWALLOW *Hirundo albigularis*

One adult at Kumbo (6°12′N, 10°40′E) on 20 Jul was identified by its chestnut forehead, white chin and throat, narrow but complete black breast band and greyish underparts. Neither Bannerman (1953) nor Louette record this species from Cameroon and Hall & Moreau's (1970) nearest recorded locality is at 9°S, 14°E in the Cuanza Norte region of Angola. Mackworth-Praed & Grant (1973) list it from as far north as the southern border of the Congo. Our record for Cameroon is thus as much as 1250–1750 km north of the species previously recorded range.

GREY-HEADED GREENBUL *Phyllastrephus poliocephalus*

One adult was seen in roadside forest near Lake Oku at 2250 m on 24 Jul and was identified on the basis of the description in Wilson (1987). This species is endemic to montane forests in Cameroon and Nigeria (Hall & Moreau 1970) and has previously been recorded from all the forests south and west of Foto (5°31′N, 9°55′E) (Reichenow 1892, Bannerman 1915, Serle 1950, 1954, 1965, Eisentraut 1973, Stuart 1986) but never above 2000 m (Stuart 1986). Stuart thought it to be absent from the higher, drier forests of Mount Manenguba and the Bamenda Highlands. This record extends the known range of this species above the 2000 m contour and further north along the mountain ridge of western Cameroon.

WHITE-BELLIED ROBIN CHAT *Cossypha roberti*

Single birds were recorded at 2400 m in dense forest around Lake Oku on 5 and 27 Aug and were identified on the basis of the description in Wilson (1987). This montane forest species has been recorded from the wetter forests of southwest Cameroon (Serle 1950, 1954, 1965, Eisentraut 1963, Stuart 1986) but was believed to be absent from the drier, northern forests of Mount Manenguba and the Bamenda Highlands (Louette 1981, Stuart 1986). Our records are the first for the Bamenda Highlands and extend the range of this species northward along the mountain ridge of western Cameroon.

WHITE-CROWNED ROBIN CHAT *Cossypha albicapilla*

Two birds were seen in small patches of woodland at Bamenda between 9 and 13 Aug. Neither Hall & Moreau (1970) nor Louette record this species from south of the Adamawa Plateau, so our records represent a southwesterly range extension into the Bamenda Highlands.

RED-WINGED WARBLER *Heliolais erythroptera*

This species was found to be common at Bamenda between 9 and 13 Aug and also in the agricultural land below Lake Oku between 23 and 29 Aug. Hall & Moreau (1970) and Louette each map only one locality at the northern end of the Bamenda Highlands, so our records extend the range further south within this region of Cameroon.

WHITE-TAILED WARBLER *Camaroptera lopesi*

A single bird (probably a juvenile female) was seen in forest-edge habitat 2100 m near Lake Oku on 17 Aug and was identified on the basis of the description in Wilson (1987). This species is endemic to the montane forests of Fernando Po, western Cameroon and eastern Nigeria (Hall & Moreau 1970). It has been recorded from the lower, wetter forests of southwest Cameroon (Bannerman 1915, Serle 1950, 1954, 1965, Boulton & Rand 1952, Eisentraut 1963, Stuart 1986) but was considered to be absent from the Bamenda Highlands by Stuart (1986), who believed that the comment of Louette that this species occurs in "patches of montane forests near Bamenda" was an error. Our record confirms the existence of the White-tailed Warbler in the Bamenda Highlands and T. Gullick's record of it in roadside forest near Lake Oku on 14–15 Feb 1987 confirms its continued presence.

YELLOW-BELLIED EREMOMELA *Eremomela icteropygialis*

One adult was seen in thorn scrub at Ngaoundere on 4 Sep. Bannerman (1939) records this species (under the name *E. griseoflava alexanderi*) from Lake Chad and from "Gashaga in Adamawa", and Hall & Moreau (1970) map 2 records from the Lake Chad area. On the basis of these records, Louette refers to this species as occurring "in all probability in North Cameroon", although the location of 'Gashaga' is uncertain, being either Gashiga (9°26′N, 13°22′E) on the Adamawa Plateau or Gashagar, Nigeria (13°22′N, 12°47′E) near Lake Chad, from where one of Hall & Moreau's (1970) records is mapped. Our record confirms the presence of this sahel species in Cameroon; its occurrence as far south as 7°19′N is noteworthy, being either 225 or 675 km south of the previously recorded range.

VIOLET-BACKED FLYCATCHER *Hyliota violacea*

One pair of this little-known (Mackworth-Praed & Grant 1973) species was seen in a clump of trees in grassland on the outskirts of Ngaoundere on 5 Sep. Bannerman (1936) records it from Yaounde (3°52′N, 11°31′E), Efulen (2°47′N, 10°32′E), Bitye (3°01′N, 12°22′E) and the Ja River. Correspondingly, Louette lists it only from forest habitats east of the Sanaga River and Hall & Moreau (1970) do not map any records north of 4°N. Our record extends the geographical range in Cameroon by over 650 km to the north and is the first away from equatorial forest habitats.

OLIVE SUNBIRD *Nectarinia olivacea*

Three individuals of this widespread species were recorded in the montane forest around Lake Oku between 26 Jul and 25 Aug. Although

Mackworth-Praed & Grant (1973) refer to this as a "forest or mountain species", Bannerman (1948, 1953) does not list any records from above 4000 ft (1220 m) in British Cameroon and Serle (1950) did not record this species above 3500 ft (1070 m) on Mount Kupe. Stuart (1986) recorded it at 1500 m on Mount Nlonako (4°53′N, 9°55′E), at 1000 m on Mount Cameroon (4°12′N, 9°11′E) and 1200 m on Mount Kupe and at 1200 m in the Rumpi Hills (4°50′N, 9°06′E) in early 1984, but did not record it from the Bamenda Highlands. Our records are an altitudinal extension to the range of this species of at least 700 m, since confirmed by T. Gullick, who recorded 6 individuals on Mount Oku, 14–15 Feb 1987.

URSULA'S MOUSE-COLOURED SUNBIRD *Nectarinia ursulae*

A probable immature bird was seen in mature montane forest near Lake Oku on 30 Jul and was tentatively identified as this species on the basis of the description in Wilson (1987). On 14–15 Feb 1987, T. Gullick recorded 4 individuals in the same area, thus confirming its presence in these forests. *N. ursulae* is endemic to Fernando Po and the mountains of the west Cameroon highland ridge (Hall & Moreau 1970), and has been recorded in the lower, wetter forests of the southern part of the ridge (Bannerman 1948, Serle 1950, 1954, 1965, Eisentraut 1973, Stuart 1986). Stuart (1986) considered this to be a species of intermediate altitudes, avoiding the higher forests of Mount Cameroon and those of Mount Manenguba and the Bamenda Highlands. These records from Mount Oku thus represent both a geographical and altitudinal extension to the known range.

LAVENDER WAXBILL *Estrilda caerulescens*

Two pairs were seen on waste ground in the Bastos area of Yaounde on 14 Jul. Hall & Moreau (1970) do not map any records of this species south of the Benue Plain and Louette concurs with this. If our record refers to wild birds, then it represents a range extension of 1150 km to the south of the most southerly record mapped in Hall & Moreau (1970).

SPECTACLED WEAVER *Ploceus ocularis*

One pair was observed building a nest in streamside scrub at 1900 m on Mount Oku in late Aug. Serle (1950) recorded it at 5000 ft (1520 m) on Mount Manenguba and 4500 ft (1370 m) at Bamenda in 1947, but Louette does not regard it as a montane species and Stuart (1986) did not find it in the Bamenda Highlands in Mar–Apr 1984. Our record may therefore be an interesting extension to the known altitudinal range.

Acknowledgements

The Mount Oku Survey was made possible by the support of the International Council for Bird Preservation, the University of Oxford and the many other individuals and organizations listed in Wilson (1987). T. Gullick kindly allowed the use of his unpublished observations from Mount Oku and I must thank D. Reavey, C. W. A. Dee and R. J. Cameron for comments on the manuscript.

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Notes on the ecology and nesting of the Spangled Kookaburra *Dacelo tyro* in southern New Guinea

by Neil Stronach

Received 13 October 1988

The nest of the Spangled Kookaburra *Dacelo tyro* is described here for the first time. The lack of data on nesting has been noted by Rand (1938), Rand & Gilliard (1967), Bell (1981), Forshaw & Cooper (1983) and Coates (1985). I observed nesting by this species on 2 occasions near the Bensbach River, in the Transfly area of southwestern Papua New Guinea.

The first nest was discovered on 25 Mar 1981 near Km 4.5 on the Balamuk (8°55′S, 141°16′E) to Morehead road. The habitat was mature savanna woodland dominated by *Acacia, Melaleuca* and *Alstona*, with scattered small evergreen thickets. The nest was a chamber excavated in an arboreal termitarium, with the entrance at the side of the roughly spherical termitarium, which was c. 45 cm in diameter and attached to the main vertical trunk of a mature *Alstona scholaris* tree, 4 m above the ground. Observations from about 20 m distance showed that the nest contained at least 2 large young, which called whether or not an adult was nearby. Food items brought to the nest were not identified, neither was there more than one adult in evidence at the nest at any one time.

On 27 Mar 1981 a second nest was discovered c. 3 km east of Balamuk. The habitat was mature closed canopy woodland dominated by *Acacia mangium* and *Melaleuca* spp. The tree canopy was higher and denser than that at the first nest and the evergreen thicket understorey was more continuous, though partly opened up by fires of the previous year. The nest was excavated in an arboreal termitarium, which was spherical and c. 60 cm in diameter, the entrance hole being at the side. The termitarium was situated in the main fork of a mature *Acacia mangium* tree c. 5 m above the ground. The nest contained an undetermined number of young. Adults bringing food visited the nest one at a time.

Local people told Rand (1938) that *D. tyro* used tree holes for nesting, and that the Blue-winged Kookaburra *D. leachii* nested in arboreal termitaria. No *D. leachii* nests were found in the area, although the species is common there. Rand (1938) observed *D. leachii* excavating an arboreal termitarium in September (the dry season); its breeding season around Port Moresby is also during the dry season (Coates 1985). Rand (1938) reports that 6 female *D. tyro* collected in December and January were in breeding condition, including one ready to lay, although none of the males taken at the same time had enlarged testes. Two males collected in southeast Irian Jaya in October were not in breeding condition (G. F. Mees). It is likely that *D. tyro* tends to breed in the wet season and *D. leachii* in the dry season. On the Bensbach River heavy rain can be expected from mid-Dec to end Apr, the remainder of the year having much less rain.

D. tyro is the commonest kookaburra in the Bensbach area, occupying all wooded habitats from open savanna woodland to dense monsoon and riverine forest. *D. leachii* was also observed in all these habitats, but in addition it occupies open grassland with scattered trees, where *D. tyro* was never seen. *D. leachii* was also seen once in the lower storey of dense *Peltophorum* forest at Bulla. In general, however, *D. leachii* occupies more open habitats than *D. tyro* and makes use of more exposed perches. At Bensbach, the Rufous-bellied Kookaburra *D. gaudichaud* was most often seen perched high in the canopy of monsoon and riverine forest, while *D. tyro* spends most of its time in the understorey. Bell (1981) noted that *D. gaudichaud* at Brown River is a bird of the forest canopy. Thus differences in habitat preferences tend to separate the three *Dacelo* species ecologically.

D. tyro was most commonly noted in 3 vegetation types. These were: (1) riverine forest, with or without adjoining *Melaleuca* woodland or *Barringtonia* parkland; (2) strips of *Dillenia alata* thicket which grow along the edges of seasonal swamps, bordered on lower ground by either *Melaleuca* swamp woodland or seasonal open swamp, and on higher ground by mixed savanna woodland or a mosaic of woodland and monsoon forest/thicket; (3) savanna woodland forming a mosaic with monsoon forest and thicket, which occupies a much greater area than the other 2 habitats in the Bensbach area. Hoogerwerf (1964) states that in southeast Irian Jaya *D. tyro* "prefers large complexes of forest and shrubbery", which may be equivalent to this third habitat type. Ninety per cent of over 300 sightings were equally distributed between these 3 habitat types.

Most observations of *D. tyro* were made in the Bensbach River area as far north and east as Morehead. However, the species was also observed near Dimississi (8°39′S, 142°14′E) in areas of woodland and *Banksia* sp./*Synoga lysicephala* shrubland on poor soils; and at Bimitj (north of Dimississi, 24 km south of the Fly River at D'Albertis Island) in *Melaleuca* woodland bordering an open seasonal watercourse with *Dillenia alata* thicket and *Barringtonia* parkland in close proximity. These records extend the observed range of *D. tyro* further north and east. Hoogerwerf (1964) suggested that Rand's (1942) observations increased the known range (Mayr 1941) of *D. tyro*, but the specimens referred to are the same as those discussed in Rand (1938), all of which were from the area between the Morehead and Wassi Kussa Rivers. Hoogerwerf (1964) provided the first records for southeastern Irian Jaya.

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Commentary on the Melba Finches *Pytilia melba* of Djibouti and the requirement of a specimen for a taxonomic description

by Robert B. Payne

Received 9 February 1989

Welch & Welch (1988) recently reported a "new subspecies" of Melba Finch *Pytilia melba* from Djibouti based on a photograph of a bird in the field, but not collected or captured and examined in the hand. Their description (1988) of a new subspecies "*Pytilia melba flavicaudata*" duplicates their earlier description in Welch *et al.* (1986), a privately-published report to their expedition sponsors. Copies of Welch *et al.* (1986) were sent in March 1987 to the British Museum (Natural History), Sub-Department of Ornithology, at Tring and the BM(NH) library in South Kensington, and to the EGI library at Oxford, satisfying a minimal condition of publication, though not satisfying review by the scientific editorial process. Welch *et al.* (1986) has been recognized as a publication by other ornithologists (Porter & Christensen 1987), but the authorship of the nomenclatural description is in question: either Welch & Welch 1986, or Welch *et al.* 1986 as cited in Welch & Welch 1988.

In fact, neither publication appears to meet the standards for description of a new taxon because no specimens were collected. The *International Code for Zoological Nomenclature* requires a specimen in the form of "an animal, or any part of an animal" (Article 72c (i)). In cases where an illustration is involved, "the specimen illustrated or described and not the illustration or the description" is considered to be the type (Article 72c (v)). The Code recommends but does not require deposition of the type specimen in a museum (Recommendation 72D). Photographs were deposited with the BM(NH), but the photograph designated cannot be considered a type specimen under Article 72c (v).

G. R. Welch has provided copies of photographs including one (no. 1) that he regards as "the holotype". The birds in Djibouti are more yellowish in plumage than other known populations of *P. melba,* the males lacking a definite area of red. Nevertheless in the photographs the males are slightly reddish or orangish around the face, especially no. 1. The forehead appears more pinkish than the bill; and in the absence of a specimen or of a colour standard in the photograph, the bill, described as reddish, as in other forms of *P. melba,* by Welch *et al.* (1986), provides an indication of the colour of the plumage. Males from neighbouring northwestern Somalia have a reddish rump and tail, but approach the Djibouti birds in having reddish plumage otherwise restricted to the region of the chin (Senckenberg specimens 1833–1835 taken in January 1900 by Erlanger at Dadab, c.40 km from Djibouti) and these are regarded as *P. m. jessei* (which grades into *P. m. soudanensis*). The red or grey colour of the lores, emphasized by Wolters (1963) and Welch *et al.* (1986) as distinguishing geographic forms of *P. melba,* actually is quite variable, with many specimens from Ethiopia and Somalia having mixed red and grey feathers in the lores, and also a few having other unusual carotenoid pigmentation with orangish outer webs on the primaries and primary coverts (e.g. USNM 598,655 from Weyfo River, Ethiopia). In addition, an adult male that appears identical to the photographs of the Djibouti males is known from a specimen collected by G. Nikolaus south of Lado, Sudan (Stuttgart Museum 59, 150).

The main point is not that the Djibouti birds may not be differentiated at a level that would be recognizable as a subspecies, but that the publications of Welch & Welch did not meet the standards of nomenclatural publication in usual practice and as described in the Code, and that without a specimen there are insufficient grounds for describing a new taxon. I recommend that the name proposed by Welch *et al.* (1986) be regarded as invalid until specimens have been collected.

Changing cultural conditions make it difficult to collect bird and other specimens in many areas. Ornithologists have the opportunity to convince local authorities of the significance of obtaining specimens in order to document the biological diversity of their areas. Where collecting is contraindicated, it might be possible to meet the standards of the Code and to obtain material evidence for direct comparison with other specimens by capturing birds and retaining samples such as distinctive feathers and preserving material such as the growing feather pulp or tissue biopsies for genetic studies. With unusual forms that may be new species-group taxa one may describe the birds in the general, and not the nomenclatural sense, as has been done for other birds (Williams 1963:18, Field 1979:12), and to take care to restrict systematic descriptions to collected specimens (Wolters 1974, Prigogine 1981).

Acknowledgements

G. R. Welch provided copies of photographs of the *Pytilia melba* from Djibouti and dates of mailing of publications. The curators of several museums loaned specimens and I thank the Natur-Museum und Forschungs-Institut "Senckenberg," Museum Alexander Koenig, Staatliches Museum für Naturkunde in Stuttgart, American Museum of Natural History, Field Museum of Natural History and US National Museum. G. S. Cowles, J. F. Monk and D. W. Snow commented on publications received and R. O. Prum commented on the manuscript.

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A new subspecies of the Green-backed Robin *Pachycephalopsis hattamensis*, comprising the first record from Papua New Guinea

by Walter E. Boles

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The Australo-Papuan robin genus *Pachycephalopsis* Salvadori 1879 (Eopsaltriidae) of New Guinea comprises 2 species, which are roughly east–west counterparts, although there is overlap in the Weyland, Nassau and Oranje Mountains (Fig. 1; map in Diamond 1985: 89). The

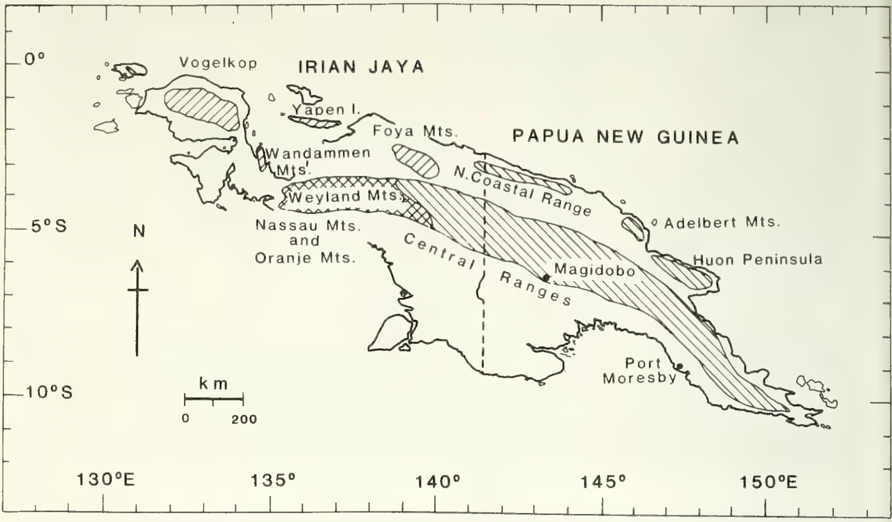
0°
5°S
10°S
130°E
135°
140°
145°
150°E
Vogelkop
IRIAN JAYA
Yapen I.
Foya Mts.
PAPUA NEW GUINEA
Wandammen Mts.
N. Coastal Range
Weyland Mts.
Nassau Mts. and Oranje Mts.
Adelbert Mts.
Huon Peninsula
Central Ranges
Magidobo
Port Moresby
N
km
0 200

Figure 1. Map showing known distributions of *Pachycephalopsis hattamensis* (rightward diagonal) and *P. poliosoma* (leftward diagonal). The range of *P. poliosoma* at the western end of central New Guinea overlaps that of *P. hattamensis* (cross hatching). Type locality (Magidobo) of *P. h. lecroyae*, relative to Papua New Guinea–Irian Jaya border, is indicated. Modified from Diamond (1985: 89).

White-eyed Robin *P. poliosoma* Sharpe 1882, the eastern member, is a mid-montane (1000–1700 m) species of the Central Ranges, Adelbert Mountains, North Coastal Range and mountains of the Huon Peninsula. Whereas this distribution extends through Papua New Guinea into eastern Irian Jaya, Indonesia, that of the Green-backed (or Western White-eyed) Robin *P. hattamensis* (Meyer) 1874 has been considered restricted to slightly lower altitudes (600–1640 m) in Irian Jaya (Vogelkop, Wandammen, Weyland, Nassau, Oranje and Foya Mountains, and Yapen Island) (Beehler *et al*. 1986, Mayr 1986).

A recent collection of birds made by Ken Aplin from Magidobo (06°11′S, 142°46′E; 1450 m a.s.l.), Papua New Guinea, and received in spirit, contained one specimen of *P. poliosoma* and 2 of *P. hattamensis*, the latter extending the range of the species eastward by some 400 km and constituting the first record from the Papuan side of the island (Fig. 1).

Four subspecies of *P. hattamensis* are currently recognized (Diamond 1985, Mayr 1986): *hattamensis* (Meyer 1874) (Vogelkop); *ernesti* Hartert 1930 (Wandammen Mountains); *axillaris* Mayr 1931 (Weyland, Nassau and Oranje Mountains); and *insularis* Diamond 1985 (Yapen Island). The Magidobo birds most closely resemble *hattamensis* and *axillaris*, but plumage differences are apparent between the new specimens and each of the named forms. Accordingly, I name the Magidobo population as a new subspecies:

Pachycephalopsis hattamensis lecroyae subsp. nov.

Holotype. Australian Museum registration number 0.59035. Collected

11 October 1985; ♂, testes enlarged (left testis 9 × 4 mm); wing (flattened) 99 mm; tail 61 mm; culmen (to skull) 21.0 mm; tarsus 31.4 mm; no moult; stomach contents small insects; field no. G55; partially skinned and dried as a skin; blood and liver samples taken by Aplin.

Paratype. AM 0.59036. Collected 13 October 1985; ♀, oviduct straight and thin, oocytes undeveloped; wing (flattened) 91 mm; tail 51 mm; culmen (to skull) 19.5 mm; tarsus 30.4 mm; no moult; field no. G76; retained in spirit. Only the second such specimen of this species in collections (Wood *et al*. 1982).

Wing lengths of the Magidobo specimens agree with the findings of Diamond (1985) that measurements of males average about 10 mm longer than those of females.

Distribution. Known only from the type locality.

Diagnosis. Differs from *ernesti* and *insularis* in having the undertail coverts orange rather than yellow-orange, the throat white like the chin and the lower breast without a grey wash. From *hattamensis* and *axillaris* it is separated by having the axillaries much more olive with only a trace of orange. Additionally, the upperparts and underparts, particularly the centre of the belly, are darker than in most specimens of the last 2 subspecies.

Etymology. This form is named in honour of Mary LeCroy, Department of Ornithology, American Museum of Natural History, in recognition of her long-standing and on-going contributions to our understanding of the avifauna of New Guinea.

Discussion. As both the holotype and paratype had been preserved and stored in alcohol prior to receipt, special care was taken when judging colours, particularly when the subspecific diagnoses are based primarily on the presence of alcohol-soluble carotenoid pigments. There is no evidence of colour alteration, however, as the potentially vulnerable orange undertail coverts remain the same colour as those of specimens of *hattamensis* and *axillaris* that had never been stored in alcohol. Additional specimens, not stored in spirit, are obviously desirable.

Acknowledgements

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IN BRIEF

THE GENDER OF THE GENUS *BATIS* BOIE, 1833

Batis Boie was proposed in the *Isis von Oken,* 1833, col. 880 at a time when only 3 species of the genus as presently interpreted were known to science, these being *B. capensis* (Linnaeus), 1766, *B. senegalensis* (Linnaeus), 1766, and *B. pririt* (Vieillot), 1818. The type-species was subsequently fixed by Sharpe, *Cat. Birds Brit. Mus.,* 1879, vol. 4: 133, as *Muscicapa capensis* Linnaeus, 1766. Boie did not indicate which gender his genus *Batis* should take, but the original references of valid taxa and their synonyms given by Traylor, in Peters' *Check-list of Birds of the World,* 1986, vol. XI: 378–385, reveal that all given the name of *Batis* have the gender of the specific (or subspecific) name feminine, with one exception, namely *Batis minor suahelicus* Neumann, 1907, a synonym of nominate *B. minor* Erlanger, 1901. In *Bull. Brit. Orn. Cl.,* 1984, 104: 144–146, W. J. Lawson described as a new species *Batis occultus* from Mt Nimba, Liberia, which is closely allied to the insular *B. poensis* Alexander, 1903, of Fernando Pòo; but in his later revision of the evergreen forest species of *Batis* in *Durban Mus. Novit.,* 1986, vol. 13, (21): 285–304, he changed the name to *B. occulta.* In this he followed the guidance of the present author who had access to the 1986 paper while it was still in proof.

In their recent paper on the occurrence of *B. minima* (Verreaux & Verreaux), 1855, in Cameroon, Erard & Colston, *Bull. Brit. Orn. Cl.,* 1988, 108: 182–184, refer to Lawson's new form from Mt Nimba as either *B. occultus* or *Batis poensis (occultus)*, overlooking its correction in 1986 to *occulta.* As the status of this latter taxon is certain to figure again in future communications, it is desirable to settle the question of the gender of the genus *Batis.* On the basis of consensus in usage over the past century and more and its adoption by Traylor, *op. cit.,* the gender of *Batis* requires to be seen as feminine.

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17 February 1989

DWARF EGGS IN THE BLACK-HEADED GULL *LARUS RIDIBUNDUS*

Dwarf eggs, in the sense of small eggs without yolk or with very little yolk, are well-known in many species of birds. The frequency of their occurrence, however, is much less documented. From 1973 to 1988 I regularly visited a colony of Black-headed Gulls *Larus ridibundus* near Amsterdam to count the numbers of clutches and eggs. Since dwarf eggs can be readily recognized amongst the thousands of normally sized eggs they could be counted accurately. In a total of 107,500 eggs, 40 were dwarf eggs, which means only 0.037%. Thirty-nine were measured (Table 1).

TABLE 1
Measurements of dwarf eggs in the Black-headed Gull *Larus ridibundus* (n = 39)

	Length	Breadth
Mean	33.47 mm	25.73 mm
Standard deviation (SD)	3.183 mm	1.877 mm
SD as % of the mean	9.51	7.30
Range: Minimum	23.8 mm	19.7 mm
Maximum	39.3 mm	29.5 mm

As could be expected, the ranges of length and breadth are larger than in normal eggs (in 334 normal eggs the standard deviation was 4.15% of the mean length (50.75 mm) and 3.34% of the mean breadth (36.0 mm)). The smaller range in breadth than in length, which is dictated by the capacity of the oviduct in normal eggs, is—without apparent need—also found in dwarf eggs.

The dwarf eggs were found equally spread over the laying period. Thirty-eight nests contained one dwarf egg, mostly together with 1–2 normal sized eggs. Only once did a nest contain 2 dwarf eggs.

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J. WALTERS

2 March 1989

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BOOKS RECEIVED

Cocker, M. & Inskipp, C. 1988. *A. Himalayan Ornithologist*. Pp. 87. 49 colour plates. Oxford University Press. £40. 18 × 24 cm. Hardback.

Brian Hamilton Hodgson, who died at the age of 94, was born in 1800 and was British Resident in Kathmandu for 24 years, during which time he collected the astonishing number of 124 birds new to science. He trained a team of Nepalese artists to provide watercolours of the Nepalese fauna, which eventually filled 1125 sheets on birds and 487 on mammals in 8 large folio volumes. These were presented to the Zoological Society of London, where they have remained almost unknown and unseen until now. The 49 plates here provide an intriguing and amusing collection of bird portraits, some more amateurish and untrue to life than others.

Hodgson must have been of a remarkable mould, a product of the Victorian era, but inspired with ideas well in advance of his time, though it appears he was given little credit for most of them or the developments which followed from them. His early advocacy of employing Gurkha troops and their use in helping to quell the Indian mutiny, thus opening the door to regular recruitment, is entirely ignored in a very recent book on the Gurkhas. The authors have done a service in revealing the magnitude of his intellectual talents, his erudite grasp of many disparate subjects, such as in particular ethnology and, importantly, the nature of the Buddhist religion, for which he was renowned as an authority in his own day.

Hodgson's immense contribution to natural history and his collections were unrivalled at the time; they included a large osteological collection (which contained 95 human skulls), 29 amphibian specimens, 28 reptiles, 903 mammals (31 new to science), and above all 9572 bird specimens of 672 species, 613 from within Nepal, of which 80 of the 124 new to science were credited to Hodgson himself; the credit for the others was in general purloined by "museum men" and "closet naturalists", to his great and expressed disgust. They included the Grey brothers, Blyth and Gould. Many of his specimens, too, "for want of having been opened and examined were not in very good shape" when eventually they received attention. Hodgson published 146 notes or papers (1826–58), 64 of them on birds, on subjects varying from probably the first consideration of migration over the Himalayas to the field behaviour of some of his new species.

He returned home in 1844, but returned to India, to Darjeeling, for some years, and his collections from there have probably caused confusion with his Nepalese specimens, mainly owing to neglect and misinterpretation, though the written sources of his data have not always been clear. This and his own driving personality probably did not readily provide him with friends and, of course, at that time professional jealousy was rife. The latter, together with financial restrictions and a failure to procure sufficient subscribers eventually made Hodgson abandon a long struggle to publish a book on Nepalese fauna, which would have included the water-colours.

To the lapse of time, some 25 years and more, from Hodgson's fading from the world of natural history until his death at 94, is due to the fact that his achievements, at least in the ornithological field, were but little recognized when he died; even in *Ibis*, only his achievements as a collector were acknowledged, a single sentence covering all his papers and the water-colours merely noted. With strange finality the *Ibis* obituary stated: "every mark of distinction which the learned societies of Europe could confer was deservedly bestowed on Hodgson but as might be expected he was never knighted nor asked to become a member of the House of Lords."

In trying to sum up this brilliant individual's importance in numerous fields in the 19th century, the authors state: "so many things that should have secured his reputation or signalled his triumphs were taken from him both by the connivance of others and a tissue of adverse circumstances." In the light of the facts given in this soberly written book one cannot escape the authors' conviction that Hodgson was unjustly overlooked.

NOTICE TO CONTRIBUTORS

Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin*. They should be typed on one side of the paper, with treble-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper*. Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*. Informants of unpublished observations should be cited by initials and name only, e.g. ". . . catches wasps (B. Eater)", but "B.B.C. Gull informs me that . . .". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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Correspondence about Club meetings and other matters not mentioned above should go to the Hon. Secretary, Mrs A. M. Moore, 1 Uppingham Road, Oakham, Rutland LE15 6JB.

CONTENTS

Page

CLUB NOTES. Annual General Meeting 61

CLEM FISHER. The discovery of new Australian species by John Gilbert, 1838–1845 64

M. MARIN A, L. F. KIFF & L. PEÑA G. Notes on Chilean birds, with descriptions of two new subspecies 66

C. J. HAZEVOET. Notes on behaviour and breeding of the Razo Lark *Alanda razae* 82

L. M. GONZALEZ, F. HIRALDO, M. DELIBES & J. CALDERON. Zoogeographic support for the Spanish Imperial Eagle as a distinct species 86

N. KAWAJI, H. HIGUCHI & H. HORI. A new breeding record of the Izu Island Thrush *Turdus celaenops* from the Tokara Islands, southwest Japan 93

W. R. J. DEAN. A review of the genera *Calandrella, Spizocorys* and *Eremelauda* (Alaudidae) 95

H. D. JACKSON. Weights of birds collected in the Mutare Municipal Area, Zimbabwe 100

B. L. MONROE, JR. The correct name of the Terek Sandpiper 106

D. PARISH & C. PRENTICE. Chestnut-cheeked Starling *Sturnus philippensis:* a first record for mainland South-East Asia 107

C. CHAPPUIS, C. ERARD & G. J. MOREL. Type specimens of *Prinia subflava* (Gmelin) and *Prinia fluviatilis* Chappuis 108

J. D. WILSON. Range extensions of some bird species of Cameroon. 110

N. STRONACH. Notes on the ecology and nesting of the Spangled Kookaburra *Dacelo tyro* in Southern New Guinea 115

R. B. PAYNE. Commentary on the Melba Finches *Pytilia melba* of Djibouti and the requirement of a specimen for a taxonomic description 117

W. E. BOLES. A new subspecies of the Green-backed Robin *Pachycephalopsis hattamensis*, comprising the first record for Papua New Guinea 119

IN BRIEF 122

BOOKS RECEIVED 123

The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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British Ornithologists' Club

Edited by
Dr J. F. MONK

Volume 109 No. 3 September 1989

FORTHCOMING MEETINGS

Tuesday, 7 November 1989 at 6.15 p.m. for 7 p.m. in the Senior Common Room, Sherfield Building, Imperial College, London SW7. **Mr Peter Robinson** will speak on **"Enforcement of Conservation Management—What is the RSPB actually achieving through its Investigations Work?".**

Those wishing to attend should notify the Hon. Secretary at 1 Uppingham Road, Oakham Rutland LE15 6JB, enclosing their cheque for £5.00 per person, by Tuesday, 24 October 1989*.

Mr Robinson is the Enforcement Officer of the RSPB.

Tuesday, 28 November 1989 at 6.15 p.m. for 7 p.m. at the same place, **Dr Peter Jones** will speak on **"The Migration Strategies of Palaearctic Migrants in West Africa in relation to Sahelian Drought".**

Those wishing to attend should notify the Hon. Secretary, as above, by Tuesday, 14 November 1989.*

Dr Peter Jones is Lecturer in Ecology at Edinburgh University and the present editor of *Ibis*.

Thursday, 14 December 1989 at 6.15 p.m. for 7 p.m. in the same place. The speaker will be **Ben King.**

Those wishing to attend should notify the Hon. Secretary, as above, by Thursday, 30 November 1989.*

Ben King, who is senior author of the *Field Guide to the Birds of S. E. Asia,* and also works at the American Museum of Natural History, New York, is widely known for his great knowledge of birds in the field in Asia and has made a number of expeditions to study birds in China. He will speak on China, in particular on his expeditions there.

Tuesday, 16 January 1990 at 6.15 p.m. for 7 p.m., in the same place. **Jeffery Boswall** will show a film **"Moving Images in the Cause of Bird Protection".**

Those wishing to attend should notify the Hon. Secretary, as above, by Tuesday, 3 January 1990.*

Jeffery Boswall is the Head of the Film and Video Unit of the RSPB.

*It is possible to take acceptances up to the weekend before a Meeting, but Members are asked to accept by 14 days before a Meeting, if possible. A plan showing Imperial College will be sent to Members on request.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 109 No. 3 Published: 25 September 1989

The seven hundred and eighty-eighth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London, SW7 on Tuesday, 9 May 1989 at 7 p.m., 25 members and 14 guests attended.

Members present were: R. E. F. PEAL (*Chairman*), M. A. ADCOCK, Miss H. BAKER, P. J. BELMAN, Mrs D. M. BRADLEY, Cdr. M. B. CASEMENT, R.N., P. J. CONDER, Dr R. A. F. COX, J. H. ELGOOD, S. J. FARNSWORTH, B. GRAY, Revd. T. W. GLADWIN, C. HELM, S. HOWE, R. H. KETTLE, Revd. G. K. MCCULLOCH, Dr J. F. MONK, Mrs A. M. MOORE, R. G. MORGAN, Mrs M. N. MULLER, R. S. PRITCHETT, V. J. SAWLE, Dr R. C. SELF, A. R. TANNER, J. W. WALL.

Guests present were: Mrs B. ADCOCK, Dr R. J. BAKER, D. BROOKS, Mrs W. BROOKS, Dr J. D. BRADLEY, P. BLACKMORE, Mrs F. M. FARNSWORTH, Mrs J. M. GLADWIN, Lieut-Cdr W. HOUGHTON, R.N., Mrs I. MCCULLOCH, P. J. MOORE, C. A. MULLER, Ms K. HOFF, Mrs N. WALL.

Dr Robin Cox, former Vice-Chairman and Secretary of the North Sea Bird Club, spoke on "North Sea Birds", giving a brief description of life and work in the North Sea Oil Fields, followed by an account of the extensive data collected by the Club which has greatly increased the information on birds in the North Sea.

The seven hundred and eighty-ninth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London, SW7 on Tuesday, 13 June 1989 at 7 p.m., 20 members and 13 guests attended.

Members present were: R. E. F. PEAL (*Chairman*), M. A. ADCOCK, Mrs D. M. BRADLEY, D. R. CALDER, P. J. CONDER, H. P. Q. CRICK, J. H. ELGOOD, S. J. FARNSWORTH, A. GIBBS, Revd. T. W. GLADWIN, B. GRAY, R. H. KETTLE, Revd. G. K. MCCULLOCH, Dr J. F. MONK, Mrs A. M. MOORE, R. G. MORGAN, V. J. SAWLE, Dr R. C. SELF, R. E. SHARLAND, M. W. WOODCOCK.

Guests present were: Mrs B. ADCOCK, C. BELL, Dr J. D. BRADLEY, Mrs J. B. CALDER, Miss C. DOVEY, Mrs F. M. FARNSWORTH, Mrs B. GIBBS, Mrs J. M. GLADWIN, Ms K. HOFF, Mrs N. LIDELL, Mrs I. MCCULLOCH, P. J. MOORE, Mrs B. J. WOODCOCK.

After supper Dr J. H. Elgood showed members an illustration of *Malimbus ibadanensis* painted by Martin Woodcock which he had just received.

The Revd. Tom Gladwin spoke on "Birds around Lake Erie". He described the habitat of the southeastern and northeastern shores of Lake Erie, an area which includes Long Point. He illustrated, with slides, areas of wetland and Carolinean forest of the region, and spoke particularly of the birds breeding in the area, outlining the migration patterns in the short spring and early summer. He also gave an indication of the impressive conservation management in the areas of the United States and Canada bordering Lake Erie.

Dr Werner Suter sent the following abstract of his talk to the Club on 14 March 1989:

Feeding ecology of Cormorants wintering in Switzerland

The exponential increase of the North Sea/Baltic population of the Cormorant *Phalacrocorax carbo* is reflected by the bird numbers wintering in Switzerland, where January counts have risen from 330 in 1967 to 7250 in 1989 (including the total area of L. Constance and L.

Geneva). A sigmoid curve fits the data very well and predicts about 10,000 Cormorants for 1996. The increase did not affect the Swiss waters evenly; it was noticeable first on the 4 larger lakes where Cormorants had been wintering regularly from the early 1930s onwards. Afterwards L. Zug was 'colonized', then some of the larger rivers, mainly along dammed sections, and recently some smaller lakes. Several lakes along the edge of the Alps that are still rather oligotrophic, but also the lakes along the southern fringe of the Alps in Ticino, hold only few or no Cormorants. The largest roosts comprise up to 3600 birds at Lake Zug and up to 2800 at Lake Geneva in late autumn, when migrants are present.

On some lakes already occupied by Cormorants for many years, there is now a growing difference between peak counts in autumn and rather stable midwinter counts. The winter numbers may be near the carrying capacity of these lakes, but on the national scale they still follow the population increase of the species closely. However, when the total national breeding population remained fairly stable between 1920 and 1970, Swiss wintering numbers were already increasing slowly but steadily, probably attributably to the eutrophication of the lowland lakes, which produced higher biomasses of fish, notably of Cyprinid species and Perch *Perca fluviatilis*. Though the Cormorants take a broad range of fish species and fish sizes, from fry (average weight 2 g) to large adults of up to 900 g, the diet on lakes is predominately Cyprinids, mainly Roach *Rutilus rutilus* and Perch. Proportions may vary between lakes and from year to year, but the 2 species generally make up 60–90% of the individuals or biomass ingested. Roach and Perch are both common in the eutrophicated Swiss lakes and account for much of the fish biomass present, although precise figures are lacking. Whitefish *Coregonus* sp. are also common and are the main component of the commercial catch, but are taken by Cormorants in a small percentage only.

Roach and Perch both form shoals, often mixed ones concentrated in different areas, attracting foraging Cormorants. The birds feed socially in groups of up to 800 (sometimes even 2000 individuals) on these shoals, which stay in depths of 20–30 m, at least in mid and late winter. Areas with little Cormorant activity may also hold many fish at similar depths, but not in shoals, only in small groups; evidently only large shoals ensure the hunting success that makes diving to such depths worthwhile.

On dammed rivers the diet is similar to lakes, but on free-running sections, Grayling *Thymallus thymallus* and Trout *Salmo trutta* often form up to 80% of the diet. Fish sizes taken are generally larger than in the lakes, and the hunting success may be equally good. Lakes are still preferred, but the circumstances leading to Cormorants entering rivers are not fully understood.

Pilgerweg 15, 8803 Rüschlikon, Switzerland

Notes on Philippine Birds, 14. Additional Records for the Island of Palawan

by Pedro C. Gonzales & Robert S. Kennedy

Received 17 October 1988

In a recent paper, Kennedy *et al*. (1986) reported 12 sight records and 3 specimen records of birds previously unrecorded for the island of Palawan in the Philippines. Since then, we have examined the extensive collection of birds from Palawan in the Philippine National Museum (PNM) and have found 11 additional specimen records previously unrecorded from there and 2 new specimen records, 1 for Busuanga and 1 for Culion, both in the Calamianes Group north of Palawan. Of the Palawan specimens, *Charadrius hiaticula* is the first record for the Philippines. Here we report on these new records and on 2 important records of birds rare to Palawan. Based on specimens in the Delaware Museum of Natural

History (DMNH), we also present the first records of *Terpsiphone atrocaudata* from Palawan and *Dendronanthus indicus* from Negros.

We follow King *et al.* (1975) for English names.

CHINESE GOSHAWK *Accipiter soloensis*

1 adult ♂ (PNM 15555) collected 29 May 1978 from Singnapan, Ransang, Quezon by R. Sison. Kennedy *et al.* (1986) reported sight records of this species. This first specimen record was originally misidentified and published (Sison 1983) as *Accipiter gularis*.

RED-LEGGED CRAKE *Rallina fasciata*

1 ♂ (PNM 16120) in adult plumage collected 18 Aug 1981 from Igay, Culion Island, Province of Palawan by D. Blanchard & P. Gonzales. Although known to McGregor (1909) from Palawan, this is the first record from Culion in the Calamianes Group.

BAILLON'S CRAKE *Porzana pusilla pusilla*

1 ♀ (PNM 13318) collected 28 Apr 1970 from Iwahig, Puerto Princesa by T. Oane. McClure & Leelavit (1972) report one ringing record from Iwahig in 1966, the only previous record from Palawan.

COMMON RINGED PLOVER *Charadrius hiaticula*

1 ♀ (PNM 13284) in winter plumage collected 9 Feb 1969 from Iwahig, Puerto Princesa by T. Oane. Although this Palaearctic breeder has been recorded from northern and eastern Australia (Condon 1975, McKean 1980), there are no previous records of this species from the Philippines (duPont 1971), nor from Taiwan (Severinghaus & Blackshaw 1976), nor Borneo (Smythies 1981). White & Bruce (1986: 176) list it as one ". . . to be expected in Wallacea". This first record for Palawan and for the Philippines belongs to *C. h. tundrae*.

GREEN SANDPIPER *Tringa ocrophus*

1 ♂ (PNM 11543) collected on 13 Nov 1968, 2 ♀ (PNM 11539, 11540) and 1 ♂ (PNM 11541) on 15 Nov 1968, and 1 ♂ (PNM 13286) on 30 Sep 1969, all from Iwahig, Puerto Princesa by T. Oane. These are the first Palawan specimens. The species was previously known from birds trapped and ringed at Iwahig: 1965 (3), 1966 (1), 1967 (1), 1968 (3), 1969 (12) and 1970 (4) (McClure & Leelavit 1972).

TEMMINCK'S STINT *Calidris temminckii*

1 ♂ (PNM 8208) collected 23 Jan 1967 from Iwahig, Puerto Princesa by T. Oane. Parkes (1986) recently reidentified the first and previously only known Philippine specimen of *C. temminckii* as *C. minuta*. However, since then, Dickinson & Kennedy (in prep) have found a specimen (USNM 201690) of this species collected 6 Feb 1907 from Laoag, Ilocos Norte, Luzon by E. A. Mearns. The present record is thus the first specimen for Palawan and the second known specimen for the Philippines. This record adds credence to the previously reported (but questioned) Temminck's Stints trapped and ringed at Iwahig: 1965 (2), 1966 (1), 1968 (4) and 1969 (5) (McClure & Leelavit 1972).

SHARP-TAILED SANDPIPER *Calidris acuminatus*

1 ♀ (PNM 8207) collected on 13 Jan 1967, 1 ♀ (PNM 11544) 18 Apr 1969, 1 ♂ (PNM 13289) 19 Apr 1969, 1 ♂ (PNM 13290) 27 Apr 1969, 1 ♀ (PNM 13291) 13 May 1969, 1 ♀ (PNM 13319) 24 May 1970, 1 ♂ (PNM 13320) 12 Apr 1970, 1 ♀ (PNM 13321) 4 May 1970, 1 ♀ (PNM 13322) 28 Apr 1970 and 1 ♂ (PNM 13536) 17 Sep 1969 all from Iwahig, Puerto Princesa by T. Oane. First records for Palawan.

CURLEW SANDPIPER *Calidris ferruginea*

Kennedy *et al.* (1986) reported this species new to Palawan based on 4 specimens and 1 sighting. We have found an additional specimen (PNM 11993) collected 17 Sep 1969 from Iwahig, Puerto Princesa by T. Oane that was originally identified as a Dunlin *Calidris alpina*. Based on this re-identification and the lack of any other records of the Dunlin from the Philippines, we do not accept the 2 ringing records of this species from Iwahig in 1967 and 1970 reported by McClure & Leelavit (1972).

RUFF *Philomachus pugnax*

1 ♂ (PNM 11992) collected 24 Sep 1969 and 1 ♀ (PNM 13537) 8 May 1969, both in winter plumage and both from Iwahig, Puerto Princesa by T. Oane. First records for Palawan.

METALLIC WOOD PIGEON *Columba vitiensis*

1 ♂ (PNM 13086) collected 12 Apr 1971 and 1 ♂ (PNM 13087) 16 Apr 1971 from Mt Gurangbato, Brooke's Point by P. Gonzales and T. Oane. First records for Palawan. This species has previously been recorded from Comiran and Lumbucan (Manuel 1937), small islets east of Balabac in the Palawan Group. Hachisuka (1939) described *Columba vitiensis anthracina* from 2 specimens from Lumbucan, the subspecies subsequently being supported by Ripley & Rabor (1958). We have not had the opportunity to compare the Palawan birds with specimens of *C. v. anthracina* nor with adequate material of *C. v. griseogularis* from the rest of the Philippines. Thus, we do not wish to assign them to either of these subspecies until we obtain more specimens from Palawan or we amass additional comparative material, or both.

GRASS OWL *Tyto capensis amauronota*

1 unsexed (PNM 15908) collected 4 Jan 1981 from Irawan, near Iwahig, Puerto Princesa by M. D. Bruce. First specimen record for Palawan. Previously known from captured and ringed birds from Iwahig: 1965 (2), 1966 (5), 1967 (1), 1968 (4) and 1969 (10) (McClure & Leelavit 1972).

SHORT-EARED OWL *Asio flammeus flammeus*

1 ♀ (PNM 11555) collected 9 Dec 1968 from Iwahig, Puerto Princesa by T. Oane. First record for Palawan and 5th record for the Philippines: Luzon—one by McGregor & Manuel (1936) and one previously unpublished sight record by Kennedy on 20 Nov 1981 in a reclaimed portion of Manila Bay at Pasay, Manila; Mindanao—one by Hachisuka (1941); and Mindoro—one by Temme (1974).

SAND MARTIN *Riparia riparia ijimae*

1 ♂ (PNM 8134) collected 3 Dec 1965, 1 ♂ (PNM 8257) 5 Jan 1967, and 1 ♂, 1 unsexed (PNM 13307, 13308) 31 Oct 1969 all from Iwahig, Puerto Princesa by T. Oane. duPont (1971) listed Palawan within the range of this species, without details, apparently on the basis of one specimen (DMNH 3837) collected in Dec 1969 from Iwahig, Puerto Princesa. Also previously known from captured and ringed birds from Iwahig: 1965 (4), 1966 (2), 1967 (3), 1968 (3) and 1969 (5) (McClure & Leelavit 1972).

EYE-BROWED THRUSH *Turdus obscurus*

1 ♂ (PNM 13150) collected 22 Apr 1971 and 1 ♀ (PNM 13151) 23 Apr 1971 both from Mt Langka, Brooke's Point by P. Gonzales and T. Oane; 1 ♀ (PNM 13313) collected 2 May 1969 from Iwahig, Puerto Princesa by T. Oane; and 1 ♀ (PNM 14741) taken 11 Apr 1975 from Salvacion, Busuanga Island (Province of Palawan) by R. Sison. First specimen records for Palawan and for Busuanga. Previously known from one ringing record from Kabigaan, Palawan in 1965 (McClure & Leelavit 1972).

JAPANESE PARADISE-FLYCATCHER *Terpsiphone atrocaudata periophthalmica*

1 immature ♂ (DMNH 74666) collected 18 Oct 1980 from Buena Vista, Palawan at c. 100 m. This is the first record of this species for Palawan and represents the greatest distance this subspecies has been found from its breeding grounds in the Batan Islands in the northern Philippines and Lan Yü Island off southern Taiwan.

FOREST WAGTAIL *Dendronanthus indicus*

1 ♂ (PNM 9092) collected 15 Mar 1968 from the Marble Mts, Cabayugan by P. Gonzales and J. Ramos. Second record for Palawan and 5th record for the Philippines; Balabac—one by Everett (1895); Calayan—one by McGregor (1904); Palawan—one by Baud (1978); and one previously unpublished specimen (DMNH 38406) record from Barrio Oringao, Kabangkalan, Negros Occidental collected in Mar 1974 by D. S. Rabor, the first record for Negros.

Acknowledgements

We are grateful to A. Castro, M. Celestino, R. Sison and the late T. Oane for their untiring efforts in the field collecting for the PNM. E. C. Dickinson and K. C. Parkes kindly read an earlier draft of this paper. We also wish to thank K. C. Parkes for confirming the identification of many of the specimens reported here and informing us of the Forest Wagtail specimen from Negros, D. M. Niles for locating the Sand Martin specimen in the DMNH, and C. A. Ross for his help in many ways throughout the preparation of this paper. RSK gratefully acknowledges the support of his Philippine studies by Joe and Jan Herron and F.R.E.E., Ltd.

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Subspeciation in the Larklike Bunting of the southwestern Afrotropics

by P. A. Clancey

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The present species of bunting was introduced to science as *Emberiza impetuani* by Dr Andrew Smith in the report on the results of the expedition led by him for the exploring of central Africa from the Cape of Good Hope in 1836 on material collected in 1834 in the country to the north of Kuruman in the northeastern northern Cape. The species is virtually confined to the relatively harsh South West Arid Zone with peripheral, local and largely seasonal extensions in mesic but ecologically suitable country to the east of the main range. The Larklike Bunting affects relatively arid, often stony terrain with sparse grass, low scrub and few trees as cover, and appears to be no more than locally nomadic when not breeding. Many populations are, however, on occasion subject to major eastward movements in years when drought and protracted winter cold occur over the steppe-like plateau regions normally affected by it (see Irwin 1981).

Macdonald (1957) showed on the basis of the small series in the British Museum (Nat. Hist.) (BMNH) that the species is subject to quite marked variation, but that the conclusion reached by earlier workers that the demonstrable variation is a seasonal manifestation was incorrect. He concluded that it is in fact a geographical correlate, and arranged the populations present in the Karoo system to the south of the Orange R. in a new subspecies: *E. i. sloggetti* (Macdonald) 1957: Deelfontein, southwest of De Aar, Cape, based on 14 specimens taken by Seimund in the early 1900s, in so doing confining the nominate form to north of the Orange R. At the same time he restricted the type-locality of nominate *E. i. impetuani*—given as "the country between the Nu Gariep and Tropic" by Smith (1836)—to eastern Botswana, which was in some respects an unfortunate choice, as Smith's party scarcely penetrated the country now included in Botswana, and the original material of the present species almost certainly came from northeast of Kuruman in the northern Cape and the western Transvaal.

Macdonald separated *sloggetti* from *E. i. impetuani* on paler colouration, narrower dorsal streaking and smaller size, a conclusion reached through comparing the Deelfontein sample with one of some 15 skins collected in South West Africa/Namibia by personnel of the BMNH expedition of 1950. A recent re-assessment of the variation in this dull coloured bunting revealed that *sloggetti* is distinguishable from nominate *impetuani*, as determined on an adequate series of the latter from the Kuruman district, on the basis of paler and greyer dorsal surfaces. The other characters in the differential diagnosis are invalid, having been arrived at by comparing the Deelfontein sample with South West African rather than northeastern Cape, western Transvaal and eastern Botswana material, from which general area the species was described. *E. i. sloggetti* is larger than *impetuani* and is similarly streaked above. The South West African sample with which it was initially compared is now seen as having been drawn from an undescribed subspecies distributed to the west from the northwestern Cape, north through South West Africa to reach southwestern Angola. This form is similar in size to *sloggetti*, generally redder in coloration and has the dorsal streaking heavier than in either *sloggetti* or nominate *impetuani*. It is formally described below.

One's interpretation of the variation in the present species is conditioned by a range of factors such as local post-breeding nomadism and major occasional, but short term, climatic-based eruptions of many populations from their breeding grounds. Others are the obscuring of subspecifically important features through rapid colour fading and feather wear to which this semi-desertic species is highly prone; and the finding that first-year birds carrying juvenile plumage remiges are shorter winged than adults of the same population. Yet another factor is that in one race (the nominate), the sexes are closely alike, whereas in the other populations males are generally larger than females (see Table 1).

TABLE 1

The wing-length (mm) parameter in adults of the Larklike Bunting *Emberiza impetuani* of the South West Arid Zone of the Afrotropics, showing the close agreement between the sexes in the nominate race of the Kalahari system, and the larger size of males of the other 2 subspecies affecting karooid country.

Localities	**Sex**	**n**	**Range**	**X̄**	**SD**
	E. i. impetuani				
N. Cape (Kuruman dist.) and S.W. Zimbabwe	♂♂	8	73–75	73.9	0.86
	♀♀	12	70–75	73.2	1.37
		X̄ of 20 ♂♀ 73.5, SD 1.22			
	E. i. sloggetti				
Cape S. of Orange R., Griqualand West and Orange Free State	♂♂	10	77–80.5	78.5	1.20
	♀♀	5	75–77.5	75.7	1.09
		X̄ of 15 ♂♀ 77.5, SD 1.77			
	E. i. eremica				
Damaraland and Kaokoland, South West Africa	♂♂	19	75–80	77.3	1.54
	♀♀	15	72–78	75.3	1.44
		X̄ of 34 ♂♀ 76.4, SD 1.81			

While subspecies are recognized in McLachlan & Liversidge (1970) and in the *SAOS Checklist* (Clancey 1980), Paynter, in the continuation of Peters' *Check-list* (vol. XIII, 1970), treats the species as monotypic. The research reported here is based on a larger body of material than was available to Macdonald, and confirms the desirability of recognizing 3 subspecies, defined as follows:

(a) *Emberiza impetuani impetuani* Smith

Emberiza impetuani A. Smith, *Rept. Exped. Expl. Centr. Afr.*, 1836, p. 48: "country between the Nu Gariep and Tropic", restricted to eastern Botswana by Macdonald, *Contr. Orn. West. S. Africa*, 1957, p. 169.

Dorsum vinaceous Tawny-Olive (Ridgway 1912), with narrow fuscous shaft-streaking. On underside with breast deep Pinkish Buff; sides buffish, and light mid-ventral surface relatively restricted. Size small, and sexes virtually alike in wing-length.

Measurements. Means of wings of ♂♂ 73.9 and of ♀♀ 73.2 mm (Table 1).

Range. Breeds from Gordonia and the northern Cape to the north of Griqualand West, western, southern and eastern Botswana, adjacent South West Africa/Namibia, the western Transvaal, and locally in the Limpopo R. drainage of southern Zimbabwe, east to the lower Bubye R. In west of range apparently extends southwest to Bushmanland (at Pofadder). Subject to local post-breeding nomadism and occasional eastward eruptive movements (as outlined above), these latter taking elements to north of the Zambezi in south-central Africa. Centred on the Kalahari system of the arid interior of the Southern African Subregion.

Remarks. Two moderately worn specimens taken at Orupembe, Kaokoland, northwestern South West Africa, on 20 May 1963, by P. J. Buys and in the State Museum, Windhoek, are of the nominate race. This locality lies well west of the breeding range. Carp Expedition material from the same locality, but taken in a different year, are *E. i. eremica* (Transvaal Museum collection).

(b) *Emberiza impetuani sloggetti* (Macdonald)

F.(ringilla) (sic) *i.(mpetuani) sloggetti* Macdonald, *Contr. Orn. West. S. Africa,* 1957, p. 170: Deelfontein, southwest of De Aar, Cape.

Compared with nominate *impetuani* greyer above (feather edging near Wood Brown), and shaft-streaking tending to be heavier. Below with breast ranging lighter, and white mid-venter more extensive with flanks paler. When fresh, with white edges to tertials and adjacent wing-coverts. Size larger, and sexes largely disparate in wing-length, with male longer winged than female. Juvenile also paler.

Measurements. Means of wings of ♂♂ 78.5 and of ♀♀ 75.7 mm (Table 1).

Range. Karooid regions of the interior of the southwestern and western Cape, east through the interior to the Fish R. drainage, Griqualand West in northern Cape, western Orange Free State and adjacent southern Transvaal. Less vagile than in case of the nominate subspecies.

Remarks. The type-specimen of *sloggetti* is a January 1901 bird taken by Seimund for Col. A. T. Sloggett, OC of a British military medical facility established at Deelfontein, in the BMNH. A specimen collected in January would be in faded and worn condition. Macdonald's mistaken use of the genus *Fringilla* in describing *sloggetti* was due to an oversight, as he clearly intended to employ *Fringillaria,* a Swainson genus of 1837. The type-species of *Fringillaria* is *Emberiza capensis* Linnaeus, 1766.

(c) **Emberiza impetuani eremica,** subsp., nov.

Type. ♂, adult. Klipkop farm, 18 miles south of Otjiwarongo, northern South West Africa/Namibia. 25 May 1959. Collected by Durban Museum personnel. In the collection of the Durban Natural History Museum, DM Reg. No. 9477.

Description. Compared with *sloggetti* redder or more vinaceous above (feather edging Sayal Brown), with heavier and blacker shaft-streaking. Ventrally, with yellower throat when fresh; breast darker (near Clay Color), and lateral surfaces and flanks deeper coloured with the pale mid-venter constricted (as in nominate *impetuani*). In wings, tertials and other remiges redder. Size about the same as *sloggetti*, and sexes again disparate in wing-length.

Measurements. Means of wings of ♂♂ 77.3 and of ♀♀ 75.3 mm (Table 1).

Material examined. 114 specimens (*main localities*: Rosh Pina, Kochena, NE of Grunau at c. 27°00′S, 18°50′E (38 specimens), Bethanie, Keetmanshoop, Mt Brukaros, Gorob Mine (23°34′S, 15°24′E on Kuiseb R. in Namib), Windhoek, Okahandja, Usakos, Otjiwarongo, Sanitatas, Ohopoho, Orupembe, 50 miles E of Torra Bay and Brandberg.

Range. Northwestern Cape on the Orange R. and in rubble desert and karooid country of South West Africa/Namibia from Great Namaqualand, north to Damaraland and Kaokoland, and in southwestern Angola. Penetrates the interior edge of the Namib. Movement pattern, if any, uncertain.

Measurements of the type-specimen (mm): wing (flattened) 77.25, culmen from base 13, tarsus 18.5, tail 57. Contour plumage moult virtually complete.

Remarks. The breeding season of *E. i. eremica* is later than that of *sloggetti*, being more influenced by uncertain rainfall, and many birds of the topotypical population and of Kaokoland examined were still in bleached and worn dress or in the early stages of moult in mid-June. An unsexed specimen taken on the Maxohue R., in the Matopos Hills of southwestern Mazohwe Zimbabwe, during a major influx of migrants in late July 1964, with a wing 78.5 mm, and in the collection of the Durban Natural History Museum, would seem attributable to *eremica*.

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The southern isolate of *Parus rufiventris pallidiventris* Reichenow, 1885

by P. A. Clancey

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The Rufous-bellied Tit *Parus rufiventris* Bocage, 1877, of south-central Africa, and an endemic of *Brachystegia* (Miombo) woodland savanna, is broadly divisible into 2 major population complexes on the basis of ventral plumage and iris colouration. The western group consists of 3 subspecies with the lower venter Cinnamon (Ridgway 1912) and the eye colour pale yellow. A fourth, the eastern subspecies, in contrast has the underside a dilute greyish vinaceous and the eyes dark brown. This latter taxon—*Parus rufiventris pallidiventris* Reichenow, 1885; Kakoma, Tabora district, western Tanzania, which has *Parus rovumae* Shelley, 1892: near the Rovuma R., southeastern Tanzania, as a synonym—ranges from northwestern Tanzania at Kibondo (3°33′S, 30°30′E) east to Morogoro, thence south to northern Mozambique, southern Malaŵi east of the Rift, and as an isolate over the plateau of eastern Zimbabwe and the adjacent Manica district of southern Mozambique. This latter detached population has been shown by Hall & Moreau (1970) to have both dark and light brown irides as opposed to dark brown in the norm of topotypical *pallidiventris*. The status of this isolate was discussed in Clancey (1974), when it was postulated that it seemed to comprise 2 distinguishable subspecies: *P. r. pallidiventris* and an undescribed form, the latter presumably a relict of an earlier (of 2) southward colonizing thrusts on the part of the pale ventralled eastern elements. Later, Irwin (1981) expressed the view that the birds occurring to the south of the Zambezi are inherently unstable, with the abdomen colour either pinkish buff or pale vinaceous and the eyes either dark or light brown.

Few additional specimens from critical areas to the south of the Zambezi have come to hand since I dealt with this issue 15 years ago, and, unfortunately, no more are likely to be collected in the foreseeable future. In the light of these circumstances, it seems desirable to re-examine the case on the available material in museums in association with an appraisal of the evolutionary and ecological backgrounds.

The facies of the available specimens comports with the criteria laid down for the 2 populations outlined in my 1974 paper, showing that in addition to the characters enumerated for the Zimbabwean plateau birds they exhibit a marked white speculum over the visible base of the primaries. This important additional feature was not highlighted in the report on the earlier study, though the overall whiter nature of the wings was emphasized. In so far as variation in shades of brown of the irides as a taxonomic character is concerned, this is only employable with caution as it is essentially subjective, the data used to-date by workers having been taken from museum specimen labels rather than by direct field sampling with the evaluation of eye-colour variation in mind. Individual variation in all 4 presently recognized subspecies of the Rufous-bellied Tit is conservative; a higher incidence of such in an isolate, such as that occurring on the interior plateau south of the Zambezi, is viewed here as unlikely, the variation in the entire detached population segment being seen as the result of 2 chronologically remote colonizing events, the descendants of which now constitute discrete yet contiguous forms.

As demonstrated by Irwin (1981), in Zimbabwe *P. rufiventris* is replaced in otherwise suitable tracts of moist miombo in parts of the central plateau by the local subspecies of the Southern Black Tit *Parus niger ravidus*, the 2 tits being largely allopatric. On the other hand, the Rufous-bellied Tit is fully sympatric with a second miombo endemic parid in the Miombo Grey Tit *Parus griseiventris parvirostris*. North of the Zambezi and west to Angola, similar niche partitioning among these tit species and the White-winged Black Tit *Parus leucomelas insignis* is found (see in particular comment by Benson *et al.* 1971). The relatively limited range of the Zimbabwean population of *P. rufiventris* results from the constraints of competition with *P. niger* and the limited expanse of suitable moist miombo woodland savanna, much of western and southern Zimbabwe being too dry for its requirements.

Viewing the birds present to the south of the Zambezi as derived from 2 separate colonizations from regions to the north of the river, those stemming from the second expansionary event are indistinguishable from *P. r. pallidiventris*, but the descendants of the primal invasion, showing distinctive characters, require a name:

Parus rufiventris stenotopicus, subsp. nov.

Type. ♂. Mt Maienji (Mwenji), Odzi district, Mashonaland, Zimbabwe, at 18°56′S, 32°21′E, 12 December 1953. Collected by M. P. Stuart Irwin. In the collection of the Natural History Museum of Zimbabwe, Bulawayo, Mus. Reg. No. 16 347.

Description. Differs from *P. r. pallidiventris* in having the black fore-throat abruptly terminated and not bled down over the upper and mid-breast as in Tanzanian specimens. The wings are overall whiter, the coverts more broadly edged and tipped with white, the remiges with broader fringes to the outer vanes, the primaries with a pronounced white speculum which extends some 7–9 mm, *versus* 2–4 mm in *pallidiventris*, beyond the apex of the primary-coverts. Subtle differences include a slightly paler grey mantle, duller, less jet black surfaces to the entire head and fore-throat, paler grey to the sides of the lower breast, and a lighter greyish vinaceous mid-ventral surface. Irides light brown. Size ranging larger.

Measurements. Wings of 5 ♂♂ 84–87 (85.9), SD 1.14 and of 1 ♀ 82 mm.

Material examined. 6 (Mermaid's Pool, N. of Harare, at 17°39′S, 31°22′E; Mt Maienji, Odzi; Banti Forest Reserve (19°20′S, 32°46′E); Haroni R. valley; Makurupini R. Valley.

Range. The moist miombo woodland savanna of Manicaland and Mashonaland, Zimbabwe, from the rain-shadow aspects of the eastern Highlands, at c. 32°46′E, west to c. 31°00′E, and north in Mashonaland to Mrewa and Shamva (17°18′S, 31°34′E). Intergrades to the east of its range on the seaward facing versant of the Eastern Highlands with *pallidiventris*, which extends eastwards to the Manica district of Mozambique. Somewhat sparse throughout its established range.

Etymology. *stenotopicus*, from Greek (and modern ecology), occupying a restricted or narrow environmental niche.

Measurements of the Type. Wing 87, tail 72 mm.

Remarks. The wing-measurements of the other subspecies of the Rufous-bellied Tit are as follows (mainly from Clancey 1979):

P. r. diligens: 4 ♂♂ 86.5–89 (87.8), SD 1.31; 2 ♀♀ 82, 82

P. r. rufiventris: 30 ♂♂ 83–89 (85.3), SD 1.70;13 ♀♀ 80–86 (82.4), SD 2.06

P. r. masukuensis: 12 ♂♂ 83–87 (85.1), SD 1.54; 12 ♀♀ 77.5–83.5 (80.7), SD 2.12

P. r. pallidiventris: 10 ♂♂ 80–84.5 (82.1), SD 1.51.

The tail-length also varies geographically, with ♂♂ of pale yellow-eyed subspecies *diligens* with a tail of > 70 mm, and *rufiventris* and *masukuensis* with tails of <69 mm. In the case of the race with dark brown eyes—*pallidiventris*—tails measure <66 mm; in *stenotopicus* tails measure >69 mm.

While the range of *P. r. stenotopicus* over the Manicaland and *Mashonaland* plateau has been shown by Irwin to be restricted to stands of moist *Brachystegia* woodland savanna *(Miombo)*, the ecological backgrounds of the other 4 races are on the whole more expansive in nature. In the case of *P. r. diligens* Clancey 1979; Andara, Okavango R., northeastern South West Africa/Namibia, this subspecies of the western cinnamon-ventralled plexus affects the dry woodlands of the Kavango region of Namibia, which constitute the ecotone between the *Brachystegia* savannas of Angola and Zambia and the *Acacia* steppe of the South West Arid Zone. In this ecotone, *Parus rufiventris diligens* and the local race of the Southern Black Tit *Parus niger xanthostomus* are largely sympatric, this combination probably effected in part by the absence of a local form of the Miombo Grey Tit *Parus griseiventris*.

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An undescribed plumage of the Crested Bird of Paradise *Cnemophilus macgregorii*

by C. B. Frith and C. J. O. Harrison

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The Crested Bird of Paradise *Cnemophilus macgregorii* is a little known, medium-sized, sexually dimorphic bird of paradise (Paradisaeidae) of the subfamily Cnemophilinae living in upper montane forests and subalpine shrubbery of the mountains of the Central Highlands, Eastern Highlands and the southeast of Papua New Guinea at altitudes between 2300 and 3500 m (Cooper & Forshaw 1977, Beehler *et al.* 1986). In general appearance the adult male is a brilliant flame golden-orange above and black below, and the female is uniform brownish-olive throughout, both sexes with a small filamental sagittal crest (for detailed plumage descriptions see Gilliard 1969 and Cooper & Forshaw 1977).

The Crested Bird of Paradise is of considerable systematic interest, being originally placed in the bowerbird family Ptilonorhynchidae (De Vis 1890, Mayr 1941, Iredale 1950) and subsequently in the birds of paradise, Paradisaeidae (Marshall 1954, Gilliard 1969, Cooper & Forshaw 1977). Anatomical studies clearly showed that *Cnemophilus* is a bird of paradise (Mayr & Gilliard 1954) and Bock (1963) demonstrated that this monotypic genus was most closely related to the other monotypic genera *Loria* and *Loboparadisaea* and that these 3 genera, perhaps together with *Macgregorii,* form the subfamily Cnemophilinae—this group representing the ancestral stock of the bird of paradise and bowerbird complex. Bock expressed the view that the position of *Macgregorii* within the Cnemophilinae was far less certain than the other 3 genera because it shares characters with both subfamilies of the Paradisaeidae. In fact *Macgregorii* was subsequently placed in the Paradisaeinae (Gilliard 1969, Diamond 1972, Schodde 1976, Cooper & Forshaw 1977). Diamond (1972) suggested that *Loria* be placed in *Cnemophilus* and Schodde (1976) suggested that *Loboparadisaea*, may also be merged into *Cnemophilus*. Some subsequent authors have transferred only *Loria* into *Cnemophilus* (Beehler & Finch 1985, Beehler *et al.* 1986) and whilst Frith (1987) considered the grouping of *Loria* and *Cnemophilus* reasonable, he felt inclined to retain *Loria* until more knowledge of the birds' life histories was available.

Having described a previously unknown grey plumage in Loria's Bird of Paradise *L. loriae* (Frith 1987), CBF came across notes he made on 2 unusual *Cnemophilus macgregorii* specimens among some bird of paradise skins casually examined during a brief visit to the Alexander Koenig Museum in Bonn, West Germany in 1971. His brief notes made at the time read: "Two immatures in very interesting plumage, ashy-grey with russett on primaries and brown-black tails." The skins in question are specimens: 19.9.1963. Wurup, Kubor Range. Sex ? and 29.12.1963. Tomba, Mt Hagen. ♀.

In view of their similarity to the grey *Loria* plumage that Frith (1987) had recently discovered, CBF requested the loan of the specimens, in order to re-examine them in conjunction with a study of other skins, while on a brief visit to the British Museum (Natural History), Tring. The ♀ 29.12.1963 was sent to Tring from Bonn but arrived too late for CBF to study it. CJOH examined it, comparing it with 2 BMNH skins of females with typical brownish-olive (female) plumage, satisfying himself that the grey feathering of the Koenig Museum skin represents an undescribed plumage and is not the result of fading or foxing. We cannot, however, confirm if the bird is an immature or an adult.

In appearance this bird resembles the typically plumaged females except that all evidence of yellow pigment is lacking. The belly is pale ash-grey, with flanks and under-tail coverts slightly darker, and a drab grey on thighs. Breast and throat are a pale mid-grey with very slightly darker edges to the feathers giving a faintly scaly pattern, which is also apparent on the normal female-plumaged birds. Head and neck are a uniform mid-grey. The mantle is a deeper grey with a distinct brownish wash, becoming greyer again on the rump. The wing coverts are brownish-grey like the mantle; the flight feathers are blackish on the hidden inner webs and are warm brown on the outer webs. The underside of the wings is dull light-grey with pale basal inner edges to the primary webs, forming a small very pale-grey patch. Upper-tail coverts and the tail are a warm brown.

It would appear that the above *Cnemophilus macgregorii* plumage is a colour-morph equivalent to the grey plumage found in some *Loria loria* individuals (Frith 1987), thus providing a further character strongly linking these 2 species. Given the limited knowledge of *Cnemophilus macgregorii* and its populations, it is difficult to assess the significance of the grey plumage described above within the species. However, it is important to note that the grey plumaged specimens are from 2 separate populations. Birds of the Kubor Range were treated as the subspecies *C. m. kuboriensis* (Mayr & Gilliard 1954), until synonomised with *C. m. sanguineus* (Diamond 1972), which is the subspecies found on Mt Hagen and other mountains of the Central and Eastern Highlands (Beehler *et al.* 1986).

The grey plumage may merely be an infrequent form of dimorphism, perhaps a simple recessive variation. On the other hand it might be a singe-moult immature plumage rarely seen and collected to date. It is noteworthy that *Loboparadisea sericea*, the third member of the Cnemophilinae, was considered unique among birds of paradise in having an immature plumage distinctly different from the adult female (Gilliard 1969, Cooper & Forshaw 1977). It would now appear that all 3 species of the Cnemophilinae do at least have a plumage different from that of their respective adult male and female in some individuals or populations, but in the case of *Loria loriae* and *Cnemophilus macgregorii* the status and significance of their grey plumage is unknown.

Since pointing out that nesting data for *Loria* and *Loboparadisea* are much needed in order to further understand these peculiar birds of paradise and the status of grey plumaged *Loria* (Frith 1987), Frith & Frith (1989 in press) express serious doubt about the identification of the nest and only egg attributed to *Cnemophilus macgregoriae* (Rothschild 1898, Gilliard 1969, Cooper & Forshaw 1977), although there is no doubt about it raising a single young in a domed mossy nest (Loke 1958).

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Notes on the birds of the Rio Mazan Valley, Azuay Province, Ecuador, with special reference to *Leptosittaca branickii, Hapalopsittaca amazonina pyrrhops* and *Metallura baroni*

by J. R. King

Received 3 December 1988

Currently, no detailed studies have been published on the avifauna of the montane forests around Cuenca, Azuay Province, southern Ecuador. Casual observations as part of more general work by a number of workers (e.g. R. S. Ridgely, D. Pitman, Ministerio de Agricultura y Ganaderia) in the neighbouring Llaviuco Valley and its adjacent paramo have been summarized in a list produced by M.A.G. (1986), but this is not widely available.

I present the findings of ornithological studies of the Rio Mazan Valley (2°52′S, 79°7′W) undertaken in 1986 and 1987 by British ornithologists, supplemented by records from the Llaviuco valley.

The Rio Mazan valley is situated c.15 km west of Cuenca and runs due east from its source lakes on Las Cajas (4000 m) to its confluence with the Rio Tomebamba (2760 m). Most observations were made above 3000 m in a 3300 ha area, designated an ecological reserve since 1981. Much of this is paramo grassland with stands of *Puya hamata* (Bromeliaceae) and with scattered patches of *Polylepis* (Rosaceae) woodland. Below 3400 m, the valley is densely wooded with *Podocarpus*-dominated primary forest. This extends down to 3050 m, though most areas below 3200 m are grassland, scrub and regenerating secondary forest, following logging in the 1970s. The forest covers an area of 500 ha, bordered, particularly on the north-facing side, by extensive cliffs. Outside the reserve only a little scrub remains, and most of this area is now grazed pasture. Recently, large tracts have been replanted with *Eucalyptus globulus* (Myrtaceae), including the very lowest parts of the reserve. Llaviuco valley, 4 km north of Mazan, and separated by a ridge of up to 3850 m, is similarly vegetated, though more intense logging has reduced the forested areas to c. 300 ha, with a smaller proportion of primary forest. It is less steep throughout, and is occupied by Laguna Llaviuco, a roughly circular lake 350 m in diameter.

Intensive field observations were made in Mazan throughout the periods 26 July–27 September 1986 and 30 July–29 October 1987. In addition, mist netting took place at 7 forest sites between 3050 and 3350 metres on 72 dates. Records from Llaviuco pertain to brief periods of observation in mid July 1978, September 1985 and the austral summer 1985/86, as summarized in M.A.G. (1986), with the addition of those obtained on short visits by Mazan workers in late July 1986 and August 1987.

All the species recorded in the Rio Mazan valley are listed in Appendix 1, with those found only in Llaviuco listed in Appendix 2. A few of the Mazan species are not currently known from Llaviuco, but Llaviuco has received far less ornithological coverage; conversely, Llaviuco species could all eventually be found in Mazan, though the intense coverage this valley has received in the August–October period suggests that those missing from Mazan (Appendix 2) do not occur there at that time of year—such avifaunal differences being possibly due, especially for forest species, to variation in valley characters. It should be noted that some intervalley movements were observed in large non-passerines (e.g. Cathartidae, Accipitridae, *Columba fasciata* and *Leptosittaca branickii*).

A number of species listed in Appendix 1 are worthy of discussion, most notably the following 3 IUCN/ICBP Red Data Book species (as defined by Collar & Andrew 1988).

LEPTOSITTACA BRANICKII

In 1986, one flock of 20–22 was seen at the head of the Mazan valley (3300–3400 m) throughout Aug and Sep, and a flock of 8 at 3100–3200 m in early Aug. Members of this smaller group were seen displaying and mating on 7 Aug. The main flock numbered 28 in 1987, occupying the valley head again in Aug, but dispersing subsequently. A second flock (15–20 birds) was also present in Aug, but after the break up of the main flock, records became confused. In Sep and Oct daily records involved groups of 3–19 birds. Temporary groups of consistently the same size were maintained over short periods (3–5 days). There were occasional records of pairs from 30 Sep, and after 4 Oct the largest flock seen was 7. At least 12 birds remained in the valley on 28 Oct.

Although not recorded from Llaviuco, *L. branickii* is probably regular there. On 7 Sep 1986 a flock of 41–42 was at the head of Mazan and divided itself into 2 equal flocks; it is believed that a flock of c. 20 had flown in from elsewhere (A. Gretton). Most notably, a group of 18 were seen flying toward Llaviuco low over the paramo north of Mazan (3600 m) on 13 Aug 1987.

Many observations indicated that the tree *Podocarpus* aff. *sprucei* was this conures' main food source. These trees, average height 11.5 m, were most abundant at the valley head where *L. branickii* sightings were most frequent, and mapping of flock movements over many hours showed that 80–85% of the trees visited were *Podocarpus*. It proved difficult to ascertain exactly which parts of the tree were being utilized for food, *Podocarpus* only fruiting on its uppermost branches. It is believed that intraspecific variable seasonality in *Podocarpus* would however result in potential food items (e.g. fruit, buds or leaf petioles) being available throughout the year.

The only call heard from *L. branickii* was a characteristic, soft, continuous chatter, which often located a feeding flock long before it was seen.

These notes are detailed for they represent the first records of *Leptosittaca branickii* from Ecuador for over 50 years, and also the first outside El Oro and Loja Provinces (R. S. Ridgely 1987), although there are possible sightings and tape-recordings from the Zapa Te Najda mountains, Azuay/Morona–Santiago border, in 1984 and 1987 (N. Krabbe 1988). The species has a disjunct distribution in the northern Andes, from Cuzco to Cajamarca in Peru, a few localities in Southern Ecuador (Ridgely 1980b) and Cauca, Huila and Caldas in Colombia (Hilty & Brown 1986). The species has recently been found to be widespread, though still uncommon, in Peru, but is rare and declining in Colombia, from where there are few recent sightings (Ridgely 1980b, Hilty & Brown 1986). The observations from Mazan suggest *L. branickii* may well be seasonal, flocking in favoured areas, probably for much of the year, then dispersing to breed. Such areas, as with Mazan and possibly Llaviuco, can clearly support quite large non-breeding flocks (*contra* Ridgely 1980b).

HAPALOPSITTACA AMAZONINA PYRRHOPS

At least 10 sightings in Mazan, 28 Aug to 27 Sep 1987. Apart from 5 on 26 Sep, all sightings were of singletons or pairs, at 3150–3350 m. Frequently seen flying high across the valley, often located by a characteristic, loud, disyllabic and repeated call, "*chak-chak . . . chak-chak*". When perched, it was usually in exposed locations on treetops, and, notably, in established secondary growth on the north side of the valley, a habitat choice possibly characteristic of this subspecies (Ridgely 1980b). Though not confirmed, the sequence of records suggested the possibility of breeding during the observation period. Interestingly, the species was not recorded during 1986 fieldwork. Although there is only one record from Llaviuco, of 2 on 18 Jul 1978 (Ridgely 1980a), Llaviuco could be a favoured site if the apparent liking for secondary forest is proven.

H. amazonina has declined markedly this century to become rare throughout its range, with the subspecies *fuertisi* and *pyrrhops* now seriously threatened (Collar & Andrew 1988). In addition to the records detailed above, *pyrrhops* is known only from 4 other sites in Ecuador (Ridgely 1980a), though it has also recently been found in northernmost Peru (Ridgely 1980b). None of the other 3 subspecies is known from further south than the head of the Magdalena Valley, Colombia, and there is therefore a gap southwards of c. 500 km between them and the northernmost *pyrrhops*. The taxonomic status of *pyrrhops* as a subspecies is uncertain; in view of its geographic isolation from the rest of the *amazonina* group, its marked plumage differences (Meyer de Schauensee 1970) and possible differences in its call structure (cf. *H. a. amazonina*—Ridgely & Gaulin 1980) and in its habitat choice, its former specific status may well be valid.

METALLURA BARONI

A large number of sightings during both years between 3150 and 3670 m, though rarely below 3350 m, were usually in scrubby areas of the timberline, but also regularly around *Polylepis* patches (c. 3650 m) and on areas of adjacent paramo. In 1986, 9 were trapped (biometrics are given in Table 1). *M. williami,* which forms a superspecies with *M. baroni* and *M. oeneocauda* (Graves 1980), was also found in Mazan, but only between 3100 and 3200 m. At the time of year observations were made, *M. baroni* appeared to feed exclusively on the nectar of *Castelleja fissifolia* (Scrophulariaceae), and was probably the commonest hummingbird in Mazan at higher altitudes, with the valley clearly supporting a large number of individuals.

To date, most authors have been of the opinion that this species inhabits arid or semi-arid habitats (e.g. Meyer de Schauensee 1970, Ridgely 1980a, Collar & Andrew 1988). Though *M. baroni* obviously occurs in such areas, our extensive series of records and that of Ortiz-Crespo (1984), clearly show it has a preference for moist montane forest edges, typical of the other members of the superspecies (Graves 1980).

A number of other species are worthy of briefer comments.

ANAS FLAVIROSTRIS

The subspecies *A. f. andinus* was recorded regularly on the paramo lakes above Mazan. On 26 Oct 1987 one individual, seen at close range, had an obviously yellow bill, and thus appeared to be of the nominate subspecies. The possibility of confusion with *A. georgica* was eliminated on tail shape and plumage pattern. I am not aware that *A. f. flavirostris* has been recorded north of Peru (Hilty & Brown 1986), though clarification of the status and taxonomy of the subspecies is needed.

VULTUR GRYPHUS

Seven records of 3 birds in 1986 and at least 30 records of 5 birds in 1987. Courtship and 'prospecting' behaviour by a pair of adults in 1987 suggested the Mazan cliffs could be a nesting site. Though formerly considered potentially endangered (Collar 1985) this species has a healthy population in Ecuador (N. Hilgert de Benavides). Indeed it has been rediscovered in Venezuela (Zonfrillo 1977) and was not considered endangered by Collar & Andrew (1988).

TABLE 1

Biometrics of *Metallura* hummingbirds trapped in the Rio Mazan Valley, 1986–87

	Total body length (mm)	Exposed culmen (mm)	Bill length to skull (mm)	Total head length (mm)	Wing chord (mm)	Weight (g)
M. baroni ♂ (n=3)	102.3	13.5	18.2	38.1	60.5	4.4
M. baroni ♀ (n=6)	100.0	13.9	17.6	36.6	56.8	4.2
M. williami atrigularis (n=7)	99.2	—	17.2	29.8	58.3	4.4
M. tyrianthina ♂ (n=54)	98.1	12.7	15.9	27.3	60.4	3.9
M. tyrianthina ♀ (n=39)	90.3	12.8	16.0	26.9	53.5	3.6

MILVAGO CHIMACHIMA

Recorded on 13 and 16 Sep 1987 (1 and 2 adults respectively) on paramo north of Mazan (3500–3600 m), with possible sightings on a number of August dates. Identified at 50 m by a combination of small size and wholly pale head and underparts, thus eliminating *Polyborus plancus*. These records greatly increase the published altitudinal range of this species, given as up to 2600 m by Hilty & Brown (1986). Possibly *Milvago chimachima*, like *P. plancus*, is starting to colonize deforested highlands.

FALCO PEREGRINUS

Recorded both years, but is only occasional. In recent years, breeding Peregrines have been observed near Quito (Jenny *et al*. 1981) and it would be interesting to establish the status of those seen in Cajas.

PATAGONA GIGAS

In 1987, recorded regularly after 14 Sep, an influx of migrants obviously having taken place. These records represent the most southerly known from Ecuador, along with one from Cuenca (Ortiz-Crespo 1974), and will be dealt with in more detail shortly (King & Holloway, *in prep*.).

COELIGINIA IRIS

After *Metallura tyrianthina* and *Lafresnaya lafresnayi*, *C. iris* is the commonest Mazan hummingbird at lower elevations (3100–3300 m), and was seen daily in good numbers. Though probably not endangered, this species is restricted to the Andes of southern Ecuador and northern Peru (Meyer de Schauensee 1970) and is listed as potentially endangered by Collar & Andrew (1988, App. 2).

HELIANGELUS VIOLA

Rare in 1986—only 4 records; in 1987 comparatively common below 3100 m. Detailed observations of its flower choice indicated *H. viola* fed largely on the introduced *Eucalyptus globulus*, its distribution in the valley (2900–3100 m) being correlated closely with that of this tree (2900–3100 m). This unexpected discovery, though a habit not unknown in hummingbirds (Carpenter 1974), is particularly significant for a potentially endangered species (Collar & Andrew 1988, App. 2).

ANDIGENA HYPOGLAUCA

Seen daily in Mazan between 3050 and 3300 m, with an estimated 10–15 individuals in the valley, and 5–6 seen in Llaviuco in both 1986 and 1987. Though quite common and widespread throughout much of its range (Andes from Caldas, Colombia to Junin, Peru), listed as potentially endangered by Collar & Andrew (1988).

OREOMANES FRASERI

Three singletons, all in *Polylepis* woodland: above Llaviuco in Sep 1985 (D. Pitman), above the head of Mazan, 13 Sep 1986 (3400 m), and south of Mazan, 24 Oct 1987 (3650 m). The species is completely dependent on *Polylepis,* a very disjunct habitat, and one which is seriously threatened in Ecuador (N. Krabbe 1988). These are the first records of the species from Azuay Province and the first from an apparent gap in the species' range between Chimboraza and Tungurahua, Riobamba, c. 150 km to the north, and San Jose, Loja, c. 100 km to the south. Listed as potentially endangered by Collar & Andrew (1988).

HEMISPINGUS VERTICALIS

Five records from Mazan in both years, all of 1–2 birds, but 4 on 27 Sep 1987. As with *O. fraseri,* these records fill a gap in the species' range, between a population c. 260 km to the north, and one c. 120 km to the south (Ridgely 1980a).

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APPENDIX 1

Birds species recorded in the Rio Mazan Valley, Ecuador, 1986–87. Nomenclature follows Hilty & Brown (1986).

Podiceps occipitalis
Anas flavirostris
Mergonetta armata
Oxyura jamaicensis
Vultur gryphus
Cathartes aura
Elanoides forficatus
Accipiter striatus
Geranoaetus melanoleucus
Buteo polyosoma
Phalcoboenus carunculatus
Milvago chimchima
Falco sparverius
Falco columbarius
Falco peregrinus
Penelope montagni
Vanellus resplendens
Tringa solitaria
Actitus macularia
Calidris bairdii
Chubbia jamesoni
Larus serranus
Columba fasciata
Leptotila verreauxi
Leptosittaca branickii
Hapalopsittaca amazonina
Pionus seniloides
Bubo virginianus
Glaucidium jardinii
Caprimulgus longirostris
Streptoprocne zonaris
Campylopterus falcatus
Colibri coruscans
Adelomyia melanogenys
Patagona gigas
Aglaeactis cupripennis
Lafresnaya lafresnayi
Pterophanes cyanopterus
Coeliginia iris
Ensifera ensifera
Heliangelus viola
Eriocnemis vestitus
Eriocremis luciani
Lesbia victoriae
Lesbia nuna
Rhamphomicron microrynchum
Metallura baroni
Metallura williami
Metallura tyrianthina
Chalcostigma stanleyi
Acestrura mulsant
Trogon personatus
Andigena hypoglauca
Piculus rivolii
Veniliornis nigriceps
Cinclodes fuscus
Leptasthenura andicola
Synallaxis azarae
Synallaxis gularis
Asthenes flammulata
Margerornis squamiger
Pseudocolaptes boissonneautii
Thripadectes flammulatus
Grallaria squamigera
Grallaria ruficapilla
Grallaria rufula
Grallaria quitensis
Scytalopus unicolor
Scytalopus latebricola
Scytalopus magellanicus
Ampelion rubrocristatus
Tyranniscus uropygialis
Mecocerculus leucophrys
Mecocerculus stictopterus
Serpophaga cinerea
Anairestes parulus
Pyrrhomyias cinnamomea
Ochthoeca fumicolor
Ochthoeca rufipectoralis
Ochthoeca frontalis
Myiotheretes striaticollis
Myiotheretes erythropygius
Myiotheretes fumigatus
Agriornis montana
Muscisaxicola alpina
Notiochelidon murina
Notiochelidon cyanoleuca
Cyanolyca turcosa
Cinclus leucocephalus
Cistothorus platensis
Troglodytes solstitialis
Turdus fuscater
Turdus serranus
Anthus bogotensis
Myioborus melanocephalus
Basileuterus nigrocristatus
Basileuterus coronatus
Conirostrum sitticolor
Conirostrum cinereum
Oreomanes fraseri
Diglossa sittoides
Diglossa humeralis
Diglossa cyanea
Tangara vassorii
Anisognathus igniventris
Dubusia taeniata
Thlypopsis ornata
Hemispingus superciliaris
Hemispingus verticalis
Catamblyrynchus diadema
Pheucticus chrysopeplus
Atlapetes rufinucha
Atlapetes torquatus
Catamenia analis
Catamenia inornata
Catamenia homochroa
Phrygilus unicolor
Zonotrichia capensis
Spinus magellanicus

APPENDIX 2

Bird species recorded only from Llaviuco Valley, Ecuador (for periods of observation see text). Nomenclature follows Hilty & Brown (1986).

Anas discors
Anas cyanoptera
Buteo poecilochrous
Oreotrochilus estella
Urochroa bougueri
Myioborus miniatus
Conirostrum albifrons
Diglossa lafresnayii
Anisognathus lacrymosus
Anisognathus flavinucha

Common Nighthawk *Chordeiles minor* and new records of seabirds from Tristan da Cunha and Gough Islands

by Peter G. Ryan

Received 2 January 1989

Records of non-breeding and vagrant birds at the Tristan da Cunha Island group and nearby Gough Island, central South Atlantic Ocean, have been reviewed (Richardson 1984, with additional records in Griffiths & Sinclair 1982, Williams & Imber 1982, Enticott 1984, Fraser 1984, Enticott 1986, Fraser *et al.* 1988). To date, 24 non-breeding seabird and 22 landbird species have been recorded from the islands, with unconfirmed records of an additional 3 seabird and 8 landbird species. In this note I record 3 new species for the region, one species new for Gough Island and one species new to the Tristan group.

SLENDER-BILLED PRION *Pachyptila belcheri*

Three Slender-billed Prions were observed at 40 and 100 km NNE of the main island of Tristan da Cunha on 27 September 1987. They were identified by their relatively small size, pale head and breast markings, lack of a dark terminal bar to the tail, and the characteristic shearwater-like flight (cf. Harrison 1983). One was moulting its outer primaries, which distinguished it at a distance from the abundant Broad-billed Prions *P. vittata (vittata)*. All 3 birds were observed by 2 observers who are familiar with the species from the Subtropical Convergence south of Africa, where it is seasonally abundant in mixed flocks with Antarctic Prions *P. (v.) desolata* (Ryan & Rose 1989). Not previously recorded from the region; probably overlooked among the large numbers of breeding Broad-billed Prions.

LEACH'S STORM-PETREL *Oceanodroma leucorrhoa*

Between 2 and 4 Leach's Storm-petrels were observed following in the ship's wake c.30 km east of Tristan da Cunha on 17 November 1984. Unrecorded previously in the central South Atlantic (Griffiths & Sinclair 1982), although fairly common in oceanic waters off southern Africa (Ryan & Rose 1989).

WHITE-RUMPED SANDPIPER *Calidris fuscicollis*

An adult White-rumped Sandpiper in non-breeding plumage was photographed at Gough Island by weather station personnel in mid-October 1984. The bird fed and roosted on the wooden helicopter landing pad at the weather station in Transvaal Bay for several days. Several individuals of this species have been recorded on both the main island of Tristan (Richardson 1984) and on Inaccessible Island (Fraser 1984), but none previously from Gough Island.

LONGTAILED SKUA *Stercorarius longicaudus*

Three Longtailed Skuas, 2 adults and 1 immature, were observed 80–130 km NNE of Tristan da Cunha on 27 September 1987. Previously recorded off the east coast of Gough Island (Williams & Imber 1982), none has been recorded from the Tristan islands *sensu stricto,* although Griffiths & Sinclair (1982) recorded it west to 14°35′W in the South Atlantic. Widespread in the southeast Atlantic (Ryan in press), it may occur at relatively low densities throughout the South Atlantic, linking the 2 apparent wintering centres in the Falkland Current (Veit 1985) and off the west coast of Southern Africa (Lambert 1980, Ryan in press).

COMMON NIGHTHAWK *Chordeiles minor*

A juvenile ♀ Common Nighthawk was found in the settlement of Edinburgh, Tristan da Cunha, on 27 November 1988 after a period of strong westerly winds. The bird died and was shipped frozen to Cape Town for identification. The specimen is lodged in the Durban Natural History Museum and has the following (fresh) measurements (mm); wing 204, tail 115, fork depth 17, culmen length 7.2, tarsus 15.3. After being defrosted in Cape Town, its mass was 48 g, which probably is similar to the mass at death, because there were no signs of dehydration; the eyes were still turgid. The bird had started to moult into adult plumage, having c. 40% adult scapular feathers, with active body moult on the upper- and underparts. The stomach was empty except for a small beetle elytrum.

Common Nighthawks breed throughout much of North and Central America, migrating to wintering areas in South America south to central Argentina. Birds leave the breeding areas in North America between late July and early October, with peak passage in late August and early September (Cramp 1985). Vagrants have reached Melville Island, Greenland, Iceland, the Faroes, Britain and the Azores (American Ornithologists' Union 1983, Cramp 1985), all British records being between 12 September and 25 October. Fairly regular occurrence at Bermuda (Bent 1940) and in the West Indies suggests a transoceanic migration route for populations breeding in eastern North America (Cramp 1985), which can account for trans-Atlantic vagrancy in the northern hemisphere. However, the late date (more than a month later than the latest British record) and the vast distance make it unlikely that the bird at Tristan da Cunha could have reached almost 40°S without first having reached South America. It was probably blown offshore by strong westerly winds while moving along the east coast of South America. The bird's mass corresponds with that of juveniles exhausted after crossing the Caribbean in October (Cramp 1985).

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Migration of the Mississippi Kite *Ictinia mississippiensis* in Bolivia, with comments on *I. plumbea*

by Susan E. Davis

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The Mississippi Kite *Ictinia mississippiensis* breeds in the central and southern United States (Palmer 1988) and, from the few data available, appears to migrate through Middle America and winter in central South America. However, detailed observations of this species during the non-breeding season until now have been nonexistent. Specimens of *I.*

mississippiensis have been taken in October in Guatemala (Parker 1977), Costa Rica (Slud 1964) and Colombia (Torres *in* Hilty & Brown); and migrants have been observed rarely in Mexico (April, May–Sutton & Burleigh 1940, Loetscher 1955), Costa Rica (September–Slud 1964), Panama (March, April, October–Ridgely 1976), Colombia (November–Hilty & Brown 1986), and Peru (October–Terborgh *et al.* 1984). On 11 November 1986, a Mississippi Kite banded in Texas was recovered at San Miguel de Velasco, Dpto. Santa Cruz, Bolivia (specimen not available) (Shaw & Maxwell 1988). The presence of *I. mississippiensis* in central South America during the boreal winter is documented by only a few specimens collected in December and February in Paraguay (Blake 1949) and in January in northern Argentina (Eisenmann 1963, Olrog 1979).

I made the following observations of *I. mississippiensis* during $2\frac{1}{2}$ years (May 1985–November 1987) of ornithological fieldwork in eastern lowland Bolivia (vicinity of Concepción, Dpto. Santa Cruz, 16°08′S, 62°02′W), an area that is a mosaic of semi-deciduous forest, wooded savanna (*cerrado*) and savanna wetland on the western edge of the Brazilian Shield (altitude 400–600 m).

I. mississippiensis arrives in Concepción at about the same time as the Plumbeous Kite *Ictinia plumbea*. Although breeding pairs of *I. plumbea* were observed in the area from September to January, it appears that migrating *I. plumbea* were also present. *I. plumbea* breeding in Middle America (March–May) also migrate south in September/October, and presumably winter in South America (Eisenmann 1963, Binford 1989). Dates of first arrival of one or the other of these *Ictinia* spp. were 7 September 1985 and 25 August 1986; but because of their close resemblance and because both spend most of the day soaring high above land, identification was difficult. In the field, adult *I. mississippiensis* were distinguished from *I. plumbea* by a pale grey patch on the upper surface of the wing, the lack of a rufous patch on the primaries, and the lack of banding on the underside of the tail (Meyer de Schauensee 1970). Juveniles could not be distinguished in the field because either species may lack the rufous wing patch.

I. mississippiensis probably arrived after *I. plumbea*. The earliest positive identification of *I. mississippiensis* in 1985 was on 18 September and in 1986 on 31 September; on these dates flocks of 3–15 kites were seen circling over savanna. Within 2–4 weeks of the first arrival of *Ictinia* spp., the number of birds per flock increased to 300–500, whereas at what appeared to be the peak of *Ictinia* migration (early October 1985 and early November 1986), flock size averaged 1000–1500, and numerous kettles containing both species of kites were observed flying south over Concepción. *I. mississippiensis* was present from 18 September to mid-November 1985 and from 31 September to 25 November 1986.

Data for 1987 are incomplete because I was absent periodically from the study area. Arrival of *Ictinia* spp. in 1987 was later than in the previous years; by early October 1987, no *Ictinia* spp. had been observed. In mid-October 1987, flocks of 10–30 *I. plumbea* were seen foraging over savanna near San Ignacio and San Jose de Chiquitos, 150 km east and 200 km southeast respectively of Concepción. *I. mississippiensis* was seen in the

Concepción area 25–31 October 1987, at which time kettles of 300–500 kites of both species were observed migrating south over the town. No observations were made after 31 October 1987, when I left the study area.

Migrating *I. mississippiensis* roosted in semi-deciduous forest islands and gallery forest associated with small rivers running through savanna. In the early morning (06.00–08.00 hrs), they foraged from tree tops in wooded savanna near their roost sites; they swooped and darted amongst the trees to catch insects, then returned to a tree top perch to eat. *I. mississippiensis* emitted a 2-note call while perched or flying; the second note was tremulous, and lower and louder than the first. By 08.30 hrs, when air temperatures had increased sufficiently to sustain soaring flight, all kites had abandoned their perches and usually did not return to the trees until late afternoon. Exceptionally, on 2 November 1986, a mixed flock of several thousand *Ictinia* spp. was observed in trees in a savanna at 13.30 hrs. This flock was extremely restless, and the birds repeatedly took flight, only to return to the trees; by 14.00 hrs they had formed a kettle and moved south at a high altitude.

Both *Ictinia* species frequently foraged in the same flock. Feeding activity was observed throughout the day but was most intense in the morning. The kites foraged while circling in loose flocks, chasing large insects with acrobatic manoeuvres on the wing. From a soaring position high up, a kite would suddenly stoop at a flying insect, sometimes with a quarter barrel-roll as it plummeted; then the bird would turn its body sideways, thrust its legs out to catch the prey with its talons, and swoop upwards with flapping wings until it reached a height suitable for soaring. The birds fed on the captured insects while soaring by repeatedly bringing forward the foot holding the catch. I observed both *Ictinia* species catch cicadas; 4 stomach contents of *I. mississippiensis* consisted mainly of parts of leaf-cutter ants (*Atta* sp.) in the alate reproductive stage. The arrival of the kites in Concepción coincided with the emergences of these insects, which are triggered by the onset of the rainy season.

I. mississippiensis did not appear to stop in the area of Concepción during the return northerly migration. On one occasion (18 March 1986) a kettle of c.200 kites was seen moving northward at an extremely high altitude, but species identification was not possible.

In recent years, flocks of *Ictinia* spp. also have been observed from January–March and from July–September over Parque Nacional Amboro at the foothills of the Andes, 200 km southwest of Concepción (R. Clarke). These kites were identified as *I. plumbea* but *I. mississippiensis* also may have been present.

I collected 4 specimens of *I. mississippiensis* in Concepción (the first for Bolivia); these are housed at the Field Museum of Natural History, Chicago: FMNH 334914, 22 October 1986–♀, ovary 12.0 × 6·0 mm, largest ovum 0·5 mm, oviduct 55 mm and convoluted, wt 285 g, skull 40% ossified, light fat; FMNH 334915, 25 October 1986–♂, left testis 5.0 × 2.5 mm, right testis 6.0 × 3.0 mm, wt. 295 g, skull 100% ossified, moderate fat; FMNH 334916, 25 October 1986–♂, testes 5.0 × 2.5 mm, wt. 240 g, skull 100% ossified, light fat; skeletal specimen FMNH 334917, 25 October 1987–♂, left testis 7.0 × 2.0 mm, right testis 7.0 × 3.0 mm, wt. 240 g, skull 90% ossified, light fat. All specimens were in adult plumage, with moderate body moult and moulting primaries; all 4 stomachs contained insect parts (see back).

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Notes on some birds of northeastern Brazil (4)

by Dante Martins Teixeira, Jorge B. Nacinovic & Giovannini Luigi

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This report follows Teixeira *et al.* 1986–88, and 1988, and records some of the results obtained by the Ornithological Section of Museu Nacional during the expeditions to northeastern Brazil of the last few years. Specimens in the Museu Nacional ornithological collection are referred to by the initials MN plus the respective catalogue number. English names and sequence of the species follow Meyer de Schauensee (1970). For all references on colours we used Villalobos & Villalobos (1947) with citation of the respective code.

YELLOW-NOSED ALBATROSS *Diomedea chlororhynchos*

Winter visitor, frequently recorded in the southern Brazilian waters (Rio Grande do Sul north to Espirito Santo); vagrants have even been observed in the North Atlantic (Blake 1977). Not previously recorded in northeastern Brazil, but the MN obtained an adult ♀ (MN 36008, gonads 10 mm, 1.25 kg, 750 mm total length) off Pontal do Peba, southern Alagoas (c. 10°21′S, 36°17′W) on 21 May 1988.

LITTLE WOOD-RAIL *Aramides mangle*

Only known from some few localities in Brazil (Pinto 1964, Sick 1985), this rail has never been reported in the extreme northeast. However, it is a very common species in the mangroves of Alagoas and southern Pernambuco. On 7 February 1988, we obtained 2 ♀♀ (MN 35650, gonads 8 mm, 164 g, 323 mm total length; MN 35651, gonads 12 mm, 202 mm, 327 mm total length) from Tatuamunha, northern Alagoas (c. 9°14′S, 35°21′W).

GREY-BREASTED CRAKE *Laterallus exilis*

RUSTY-FLANKED CRAKE *Laterallus levraudi*

Ripley & Beehler (1985) attributed to *L. levraudi*, an endemic species of Venezuela (Ripley 1977), a young crake collected at Cabedelo, Paraiba (c. 6°58′S, 34°50′W) by J. Albuquerque on 18 June 1980. This specimen, now in the MN ornithological collection (MN 35236, male, gonads 3 mm, 26.5 g, 182 mm total length) had a peculiar dark plumage, fuscous brown (OOS 3 2°) in the upperparts and medium grey (CCU 12 1°) in the underparts, with the throat and the centre of the abdomen whitish. A detailed examination, however, revealed the presence of chestnut feathers interspersed in the nape and hindneck and also some undertail coverts barred with black and white. Recently, we had the opportunity to visit the Phelps and Rancho Grande collections, Venezuela, and to compare this specimen with adults and young of *L. levraudi*. As a result, we consider that this bird is a subadult example of *Laterallus exilis*, a rather common species in Amazonian Brazil; the contrasting chestnut hindneck and black and white undertail coverts are characters never observed in *L. levraudi* at any age. Additionally, on 17 November 1988, we obtained a second specimen, a presumed older subadult of *L. exilis* (MN 36161, ♀, gonads 7 mm, 34.5 g, 171 mm total length) from Lagoa de Itaipu, Rio de Janeiro (c. 22°58′S, 43°02′W), which showed a plumage intermediate between the bird from Paraiba and the typical adult pattern of *L. exilis*. Even though we consider that the subadult plumage of *L. exilis* seems to be undescribed until now, it is difficult to explain a misidentification involving *L. levraudi* as, so far as we know, in several South American species of the genus *Laterallus* (*L. viridis*, *L. melanophaius* and *L. fasciatus*) the subadults are rather similar to the adults regarding the major features of the plumage, and remarkable age-related differences in this sense are not observed. It is also interesting to mention that there are only very few records of *L. exilis* out of Amazonia (Teixeira *et al*. 1986, Willis & Oniki 1985).

BLACK TERN *Chlidonias niger*

Recently recorded in Brazil in Rio de Janeiro (Teixeira *et al.* 1988). Another individual, in transition plumage, was observed off Itamaraca Island, coastal Pernambuco (c. 7°45'S, 34°51'W) on 30 November 1988.

BLUE-CROWNED PARAKEET *Aratinga acuticaudata*

Widely distributed in Brazil, but not hitherto recorded from the extreme northeast (Forshaw 1978, Pinto 1978). However, it is a common species in Alagoas, and we observed many flocks in the pasturelands of Quebrangulo (c. 9°15'S, 36°24'W) and also in the corn plantations of Tatuamunha in 1987 and 1988.

LONG-TAILED HERMIT *Phaethornis superciliosus*

As mentioned by Teixeira *et al.* (1987), this is a common species in the forest remnants of northeastern Brazil. On 15 November 1983, we obtained an adult ♀ (MN 33349, gonads 4 mm, 6 g, 175 mm total length) from Valença Bahia (c. 13°22'S, 39°05'W). This record extends considerably the known distribution of the species south to São Francisco river.

RINGED WOODPECKER *Celeus torquatus*

The little known *Celeus torquatus tinnunculus* of the Atlantic forest was previously recorded only from very few localities in southern Bahia (Pinto 1978, Short 1982). In the last few years, however, it has been possible to observe individuals in the forest remnants of Valença, Bahia, and A. Ruschi collected a ♀ also from Agua Limpa, municipality of Sao Mateus, Espirito Santo (c. 18°44'S, 39°51'W) on 23 October 1972 (see also Gonzaga *et al.* 1988). As previously recognized (e.g. Sick & Teixeira 1979), *C. torquatus tinnunculus* seems to be uncommon and may be considered endangered.

SNETHLAGE'S WOODCREEPER *Xiphocolaptes franciscanus*

Only known from Brejo Januaria, extreme northern Minas Gerais (c. 15°29'S, 44°22'W). However, the MN houses an unsexed specimen (MN 13822) collected by Pfrimmer (no date) in 'Posse', southern Goias (possibly c. 14°S, 46°W). Contrary to some authors (see Mayer de Schauensee 1970), it seems appropriate here to stress that, regarding plumage, this species is more similar to the Moustached Woodcreeper *X. falcirostris* than to any other representative of the genus. We have material of both these Dendrocolaptidae presently under study, and the preliminary data suggest that these woodcreepers may be more closely related than we have believed in the past.

GREAT XENOPS *Megaxenops parnaguae*

Described at the beginning of this century, *M. parnaguae* is known from very few specimens and localities of northeastern Brazil (southern Piaui, northern Bahia and Ceara–*apud* Vaurie 1980). In July 1988, we had the opportunity to study the species in the sub-caducifolious highland forests of Chapada do Araripe, southern Ceará (c. 7°13'S, 39°24'W). We found that the Great Xenops joins mixed flocks of the Black-capped Antwren *Herpsilochmus pileatus,* the Rufous-crowned Greenlet *Hylophilus poicilotis* and the Golden-crowned Warbler *Basileuterus culicivorus*. As recorded by Kaempfer (*in* Vaurie 1980), *M. parnaguae* does not have scansorial habits, and the motion and foraging attitudes of the birds observed remind one of other arboreal Furnariidae like *Automolus* or *Philydor*. Similarly, we never saw *M. parnaguae* pecking at wood like a *Xenops,* and so far as we know, the species scans the surface of leaves, branches and also under bark, looking for prey. The stomach contents of an adult ♂ collected on 8 July 1988 (MN 36053, gonads 2 mm, 25 g, 174 mm total length) revealed the presence of some insects (Formicidae, Scarabaeidae and an unidentified caterpillar) and many spiders (*Ctenus* sp., *Micrathena* sp., *Phoneutria* sp.) but no typical endophytic arthropods. The known vocalizations of *M. parnaguae* are inconspicuous, and we recorded above all a low and deep sequence, quite different from the *Xenops* pattern.

RUFOUS-BREASTED LEAFSCRAPER *Sclerurus scansor*

In northeastern Brazil this species is represented by *Sclerurus scansor cearensis,* which is only known from northern Ceara (Baturite and Ibiapaba ranges), and northern Bahia (Bonfim—*apud* Pinto 1978). It also occurs in the sub-caducifolious highland forest of Chapada do Araripe, southern Ceara, whence the MN obtained one ♂ (MN 36056, gonads 3 mm, 34 g, 186 mm total length), and two ♀♀ (MN 36054, gonads 4 mm, 36 g, 185 mm total length; MN 36055, gonads 3 mm, 32 g, 193 mm total length) in July 1988. According to our observations, in contrast to Vaurie (1980), this Furnariidae has a very local distribution in northeastern Brazil.

FERRUGINOUS ANTBIRD *Drymophila ferruginea*

Only known previously from Argentina, Paraguay and southeastern Brazil (from Rio Grande do Sul north to Espirito Santo–*apud* Pinto 1978), this species in fact also occurs in the northeast. On 16 October 1983 we obtained an adult ♂ (MN 34362, gonads 4 mm, 12 g, 147 mm total length) from the lowland forests of Valença, Bahia. According to our observations, this species is not rare in this area, occurring side by side with the Scaled Antbird *Drypmophila squamata.*

STREAKED-CAPPED ANTWREN *Terenura maculata*

Known from eastern to southern Brazil (Espirito Santo and eastern Minas Gerais south to Santa Catarina–*apud* Pinto 1978), Paraguay and Argentina, it also occurs in Valença, Bahia, whence we collected an adult ♂ (MN 34376, gonads 2 mm, 6.5 g, 110 mm total length) on 18 October 1983.

FRINGE-BACKED FIRE-EYE *Pyriglena atra*

Only known from coastal Bahia, around the Todos os Santos Bay (the so-called 'reconcavo' region), this species seems to be very local. Nowadays, its range seems to be restricted to the forest remnants of extreme northern Bahia south to around 13°S. According to our latest observations in Bahia, *P. atra* is replaced by the common White-shouldered Fire-eye *P. leucoptera,* at the environs of Valença. It was possible to locate *P. atra* only in the northern places of the 'reconcavo', whence the MN obtained an adult ♂ (MN 31879, gonads 10 mm, 32 g, 180 mm total length) from Santo Amaro (c. 12°32'S, 38°43'W) on 14 October 1977. Considering the level of deforestation in the region, this bird should likely be considered now as very endangered (see also Willis & Oniki 1982).

WHITE-NAPED XENOPSARIS *Xenopsaris albinucha*

In Brazil, *X. albinucha* is known from very few localities of the northeast (Piaui, Ceara and western Bahia—*apud* Pinto 1944, Sick 1985). It also occurs in the 'caatinga' of Delmiro Gouveia, extreme southwestern Alagoas (c. 9°23'S, 37°59'W) whence we obtained an adult ♀ (MN 36064, gonads 4 mm, 9.8 g 135 mm total length) and 2 of their young (MN 36065, male, gonads 1 mm, 9.3 g, 129 mm total length; MN 36066, male, gonads 1 mm, 9.6 g, 130 mm total length) between 30 and 31 May 1988. According to our observations, both parents care for the young, which show a peculiar plumage, similar to the adult female but with the crown, back, rump and upper wing coverts scalloped with ochraceous (OOY 15 6°), and with the inner secondaries and outer rectrices strongly margined with whitish on the outer web. It is interesting to stress that this plumage, briefly mentioned by Berlepsch & Hartert (1902), is quite different from the pattern recorded for the young in the genus *Pachyramphus,* and thus seems to reinforce the position of *X. albinucha* as an 'incertae sedis' (Traylor 1979).

VELVETY BLACK-TYRANT *Knipolegus nigerrimus*

Only known from southeastern Brazil, from Parana north to Espirito Santo and Minas Gerais (Traylor 1979), this species also occurs in the dry 'caatinga' of southwestern Alagoas and northeastern Bahia (Cocorobo, c. 9°55'S, 39°07'W), whence we obtained 2 adult ♂♂, one on 11 January 1979 (MN 32067, gonads 10 mm, 21 g, 190 mm total length), and one on 31 July 1979 (MN 32157, gonads 2 mm, 20 g, 185 mm total length).

OCHRE-FACED TODY-FLYCATCHER *Todirostrum plumbeiceps*

In Brazil, this species has been recorded from Rio Grande do Sul north to Minas Gerais and Espirito Santo (Traylor 1979). However, it occurs also in northeastern Brazil, and we obtained 3 adults (MN 35769, ♂, gonads 2 mm, 5.5 g, 107 mm total length; MN 35770, unsexed, 5.3 g, 102 mm total length; MN 35771, ♀, gonads 2 mm, 5.3 g, 105 mm total length) from Quebrangulo, Alagoas, between 27 and 28 January 1988. Compared with a series housed in the MN, these specimens were identical with *T. p. cinereipectus* from Minas Gerais and Espirito Santo.

WHITE-LORED TYRANULET *Ornithion inerme*

The occurrence of *O. inerme* in Bahia was considered doubtful (Hellmeyr 1927, Zimmer 1941) until the discovery of a specimen from Itajuipe (c. 14°41'S, 39°22'W–*apud* Novaes 1978). However, it is in fact a rather common bird in the lowland forests of Valença, where it was possible to observe several individuals in December 1987.

GREEN-HEADED TANAGER *Tangara seledon*

As mentioned by Pinto (1944), the occurrence of this species in Bahia is doubtful. However, the MN obtained an adult ♂ (MN 33277, 16 g, 110 mm total length) from Mata de Sao João (c. 12°31′S, 38°17′W) on 28 June 1983. This seems to be the first confirmed locality for the species in northeastern Brazil.

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Notes on the Malachite Kingfisher *Corythornis (Alcedo) cristata*

by Robert W. Dickerman

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The taxonomic literature on *Corythornis cristata* is confusing. Peters (1945) recognised only 2 subspecies for continental Africa, one a *nomen nov.* (see below). He apparently followed Chapin (1939) and earlier authors in placing *C. c. galerita* (type locality Senegal) in the synonomy of nominate *cristata* (type locality Cape of Good Hope, South Africa). Neither Mackworth-Praed & Grant (1970) nor Colston & Curry-Lindahl (1986) recognised *galerita*. However, Fry *et al.* (1988) used that name for all populations of continental Africa except for those of southern Angola and southwestern Zambia south to the Cape of Good Hope. Examination of the 130 specimens in the American Museum of Natural History (AMNH) revealed 3 identifiable populations in continental Africa as defined below. Fry *et al.* found no sexual dimorphism in size in this species, so because of small samples of some populations, measurements of the sexes were combined in Table 1.

Corythornis cristata cristata (Pallas)

Synonyms.

Alcedo cristata Pallas, 1764. (in Vroeg. Cat. Adumbr., p. 1); Cape of Good Hope.

Alcedo cristata robertsi Peters, 1945. *nomen nov.* for *Corythornis cristata longirostris* Roberts; Kabulabula, Chobe River, Bechuanaland (not *Alcedo longirostris* Radde 1884).

Diagnosis. Chin white; moustachial region, underparts and flanks pale rufous, belly and undertail coverts pale buff to whitish. Size larger (see Table 1).

Range. Nigeria east to Uganda and Kenya south to the Cape of Good Hope. 97 specimens examined.

Remarks. Chapin (1939), who only had a small portion of the series of specimens now available, only commented on size and apparently did not make colour comparisons.

Corythornis cristata galerita (Muller)

Synonym.

Alcedo galerita P. L. S. Muller, 1776. Natur. Syst., suppl. p. 94, Senegal.

Diagnosis. Underparts (adults and juveniles), including belly, darker rufous, and dorsally darker blue than *cristata*; size smaller (see Table 1).

Range. Senegal south and east to Liberia, probably east to Ghana, but only specimens (13) from Sierra Leone and Liberia examined.

TABLE 1

Measurements of *Corythornis cristata* (with number, range, mean in mm), and standard deviation. Culmens were measured from the anterior edge of the nostril

	Wing chord				**Culmen**			
	No.	Range	Mean	SD	No.	Range	Mean	SD
galerita	9	51–53	(51.8)	1.16	8	23.1–26.2	(24.7)	1.11
stuartkeithi	20	53–60	(56.9)	1.81	20	23.2–27.7	(25.0)	1.22
cristata Kenya & Uganda	16	54–59	(56.6)	1.67	16	24.5–28.0	(26.6)	1.10
cristata southern Africa	7	55–60	(57.3)	1.88	8	24.1–29.8	(27.1)	1.99

Remarks. None of 18 juvenile *cristata* is as deeply coloured ventrally as the 3 available young of *galerita*.

Corythornis cristata stuartkeithi subsp. nov.

Type. Adult ♂. AMNH 636679. Collected at "Arba-Schiko (Anseba R) Abyss" [=Anseba watercourse, Eritrea, northern Ethiopia], on 13 March 1907, by G. Schrader. Collector's number 115.

Description. Similar to *galerita* in having entire venter rufous, including the undertail coverts; but in series the rufous somewhat paler. Somewhat paler blue dorsally especially on rump than *galerita*. Size larger (Table 1).

Range. Sudan (Blue Nile) and Ethiopia (Eritrea and southeast). 21 specimens examined.

Remarks. Two juvenile *stuartkeithi* are paler ventrally and thus are more like *cristata*; however, they appear to have less greyish wash across the breast than in young *galerita* and in most young *cristata*.

Note that the range of rufous-bellied *stuartkeithi* is separated from that of the smaller, darker rufous-bellied *galerita* by the northern portion of the range of the pale-bellied *cristata*.

This subspecies is named for Stuart Keith in recognition of his efforts towards the completion of the monumental contribution "The Birds of Africa".

Acknowledgements

I wish to thank Alexander L. Peal, Head of Wildlife and National Parks, Republic of Liberia, for his cooperation during field work in 1988. Stuart Keith and W. Parker Cane kindly and critically reviewed the manuscript.

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Notes on *Sturnella magna* in South America with a description of a new subspecies

by R. W. Dickerman

Received 17 January 1989

Sturnella magna—the 'Eastern Meadowlark'—occurs in tropical, subtropical and temperate grasslands of northern South America: in Colombia, Venezuela, Guyana, Surinam and in northeastern Brazil. Chapman (1931) provided the last revision of the South American populations. He recognized 4 subspecies: *meridialis* (Bogotá, Colombia), *paralios* (Santa Marta Mountains, Colombia), *practicola* (northern Guyana lowlands) and *monticola* (Mt Roraima, Guyana = Venezuela). Phelps & Phelps (1963) included Venezuelan populations in *paralios,* recognized by Chapman as *practicola*. Blake (1968) combined *practicola* and *monticola,* using the latter name, although *practicola* has page priority. Haverschmidt (1955) in a footnote wrote "... the meadowlarks from Surinam belong to an undescribed race according to Zimmer (*in litt.*)", but he later (1968) used *monticola* for the Surinam birds without further comment. Unfortunately a copy of the letter from Zimmer is not in the archives of the American Museum of Natural History (AMNH).

Recently while making an inventory of specimens from Venezuela in the AMNH, and before I had compiled the above history, I realized: (a) that there were 4 identifiable populations in Venezuela, and (b) that the series of specimens from northeastern Brazil represented a fifth taxa.

To resolve these problems, I obtained on loan paratypes and fresh-plumaged, near-topotypes of *paralios* and *practicola*, and additional specimens from Colombia and Venezuela. Only specimens in un-worn plumage (except for Surinam and Brazil) examined during this study, and those that had not been cited earlier by Chapman (1931), are listed below.

In brief, when specimens were arranged geographically, *meridionalis* and *monticola* were immediately recognised as distinct. Within the less-black series the Brazilian series was separable from the warmer-brown birds of the Rio Orinoco lowlands and in series was distinguishable from *paralios* of northern Venezuela and Colombia.

S. m. meridionalis and *monticola* are both dark subspecies with appreciably larger black areas in the dorsal feathers and in the barring of the remiges and rectrices. As noted by Chapman, *monticola* is considerably smaller than *meridionalis* and in fresh plumage it is much browner dorsally, especially on the crown. The range of *meridionalis* was accurately described by Blake (1968) "... Eastern Andes of Colombia from Norte de Santander southward (locally) to the head of the Magdelena Valley and northwestern Venezuela in the Andes of Tachira and Merida and Trujillo." *S. m. monticola* is restricted to the highlands of southeastern Bolivar, and adjacent Guyana.

The ranges of the 2 blackish subspecies are separated by the ranges of 2 smaller, paler subspecies. *S. m. paralios* is the slightly darker of the 2, with a greyer brown dorsum and a greyer nape. Specimens from the

Department of Hulia, Colombia, and from Venezuela average darker than birds from northern Colombia, but all are greyer-brown. In contrast, *practicola* has a warmer brown dorsum, and browner nape. Chapman (1931), in default of specimens from the northern lowlands of Guyana, used a series from Maripa on the lower Rio Orinoco to represent *practicola*. In fact that series, as well as other specimens from the Orinocan lowlands match well a paratype of *practicola*. The characters used by Chubb (1921) in the original description of *practicola*, namely smaller size, brighter coloration of the underparts and more white in the tail, are without value.

S. m. paralios occurs at medium and lower elevations in northern Colombia (south to Aguachica in the Magdelena Valley), with an atypically darker population in the Department of Hulia, eastward in the north to the savannas of northern and central Venezuela.

Zimmer's recognition of the Surinam population as representing a new subspecies must have been based to a large extent on the series from northeastern Brazil, as only 2 of 18 adults from Surinam are of any value for colour comparisons and even those are moderately worn. Those populations may now be known as:

Sturnella magna quinta subsp. nov.

Holotype. ♂, AMNH 237404, Frechal, Rio Surumu, Amapa, Brazil; collected 10 September 1927 by T. D. Carter. Collector's number 208.

Diagnosis. Most similar to *paralios* in being greyer-brown (less warm) dorsally than *practicola*; the lateral crown and post-ocular stripes of males blacker as in *paralios*; auricular-area greyer than *practicola*; edges of secondaries and coverts greyer-brown than either of those subspecies. Much less black than *meridionalis* and *monticola*; much smaller than *meridionalis* (Chapman 1931).

Etymology. This is the fifth form to be named from South America.

Discussion. Two juveniles from Surinam are somewhat less rich dorsally than a comparable juvenile of *practicola* from Alta Gracia, Venezuela. The range of *quinta* is separated from the most similar subspecies *paralios* by the ranges of the very distinctive subspecies *practicola* and *monticola*.

Species examined:–

S. m. meridionalis. COLOMBIA. *Dept. Norte de Santander*: Ocana 6♂♂, 2♀♀; Pamploma 3♂♂. *Dept. Santander*: Angostura 1♂; Pena Blanca 1♂; Paramo San Pedro 2♂♂, 1♀; Las Ventanes 1♂; Hda. Las Vegas 3♂♂. VENEZUELA. *Dept. Merida*: Tabay 4♂♂; Azulita 1♂, 1♀; La Cuchilla 2♂♂.

S. m. meridionalis intermediate towards *S. m. paralios*. COLOMBIA. *Dept. Dinamarca*: La Holanda 2♂♂; Sopo 1♂. VENEZUELA. *Dept. Apure*: San Carlos del Meta 1♂.

S. m. paralios. COLOMBIA. *Dept. Magdelena*: Aguachica 7♂♂, 3♀♀; Camperucho 1♂; Hda. La Esperanza 1♂; San Sebastian 1♀ (paratype); El Manon 2♂♂. *Dept. Boyaca*: Palmar 1♂. *Dept. Hulia*: La Candela 3♂♂; La Plata 2♀♀. VENEZUELA. *Dept. Carabobo*: El Trompillo 2♀♀; La Cumbre de Valencia 1♂. *Dept. Lara*: Tocuyo 2♂♂; Cubiro 1♂, 1♀. *Dept. Trujillo*: Teta de Niquito 1♂. *Dept. Portuguesa*: Acarigua 2♂♂. *Dept. Aragua*: La Victoria 3♂♂; Colonia Tovar 2♂♂. *Dept. Yaracuy*: Nirgua 1♂.

S. m. practicola. GUYANA. Abary 1♀ (paratype); no locality 1. VENEZUELA. *Dept. Bolivar*: Maripa, Rio Caura 3♂♂, 1♀; Maipures 1♂; Alta Gracia 2♂♂, 1 juv.; La Mariquita 1♀, *Dept. Anzoategui*: Rio Suata 2♀♀.

S. m. practicola × *S. m. monticola*. GUYANA. Upper Takutu Mts. 1??; Annai, Rupununi River 1♂, 1♀; no locality 1. VENEZUELA. *Dept. Bolivar*: Cerro Upuima (= Cerro Upuigma Tepui) 1♀.

S. m. monticola. VENEZUELA. *Dept. Bolivar*: Cerro Roraima 2♂♂, 1♀; Cerro Ayuan-tepui 5♂♂, 1♀; Cerro Paurai Tepui 1♀; Cerro Ptari-tepui 1♂, 2♀♀.

S. m. quinta. SURINAM. Zanderij 8♂♂, 9♀♀, 2 juv.; "Interior" 1♀. BRAZIL. *Estado Amapa*. Type locality 5♂♂, 2♀♀; Lima. Rio Cotinga 2♂♂, 2♀♀; Porto Platon 2♂♂, 1♀.

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The avian genera *Tesia* and *Urosphena*

by Ben King

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Delacour (1942) defined the genus *Bradypterus* as follows: "Rictal bristles very small and inconspicuous; throat, breast, under tail coverts and lesser wing coverts sometimes plain, sometimes streaked or spotted; tail about equal to wing or longer; bill slight." He defined *Cettia* (differentiating it from *Bradypterus*) as follows: "Rictal bristles well developed and visible; no dark markings on the body plumage. Rectrices soft, never stiff nor with underlying barring, always 10 in number. Thickness of bill variable." He then divided the genus *Cettia* into 3 subgenera. The subgenus *Urosphena* was distinguished by "Tail shorter than wing by

10 mm or more; bill long and narrow; pale supercilium long, broad and conspicuous", whereas the subgenera *Horeites* and *Cettia* had "Tail about equal to wing; pale supercilium shorter and less conspicuous". The subgenus *Horeites* was recognised by "Bill comparatively broad and thick; rectrices of normal width; tail coverts also normal; rictal bristles strong". The subgenus *Cettia* (containing only *C. cetti*) was recognised by "Bill narrow; rectrices broad; tail coverts long and broad; rictal bristles weak".

Delacour (1942) defined the genus *Tesia* by "very short rectrices [are] hidden by the tail coverts and slightly curved downwards. The bill is long, broad and flattened at its base, with a strong ridge on the upper mandible. The upper parts are dark grey or olive, and the underparts grey, darker or lighter." Delacour separated *Tesia castaneocoronata* off from *Tesia* and placed it in a new genus, *Chorotesia,* based on its longer rectrices, thin, narrow bill, and brighter colour pattern.

White & Bruce (1986) placed *Tesia everetti* in the genus *Urosphena,* while Watson (in Peters 1986) considered *Tesia everetti* a subspecies of *Urosphena subulata* and placed *Tesia castaneocoronata* in the genus *Oligura*.

INVESTIGATIONS

I measured a series of *Tesia, Urosphena* and *Cettia* to see if the measurements and ratios might cluster. Also, tape recordings of all species of *Tesia, Urosphena* and *Cettia* and several species of *Bradypterus* were obtained in the field and compared (the tapes are on deposit at the Library of Natural Sounds in the Cornell University Laboratory of Ornithology) and field observations of all species of *Tesia, Urosphena* and *Cettia* and several species of *Bradypterus* were made.

RESULTS

(1) The genera *Bradypterus* and *Cettia* can further be separated by: (**A**) *Bradypterus* songs are insect-like and non-musical, while *Cettia* songs are musical, often staccato warbles; and (**B**) *Bradypterus* warblers walk, but *Cettia* warblers hop.

(2) *Cettia pallidipes* belongs with *Horeites* and not *Urosphena* because: (**A**) its tail is too long (note that its wing/tail ratio clusters with *Horeites* and not *Urosphena* (Table 1); (**B**) its rectrices are of normal width (not narrow as in *Urosphena*): (**C**) its pale supercilium is shorter (like *Horeites*) than in *Urosphena*; and (**D**) its song is a staccato warble (Fig. 1) in the 1–4 KHz range (like most other *Horeites*) rather than the high pitched monotones at 8–10 KHz typical of *Urosphena*.

The only character *pallidipes* shares with *Urosphena* is a long narrow bill, which some *Horeites* also have. A better definition for *Horeites* would thus be "tail less than 20 mm shorter than wing length", while *Urosphena* would be "tail more than 20 mm shorter than wing length".

(3) The genus *Tesia*, including *everetti*, is characterised by (**A**) loud staccato songs in the 1–3 KHz range (Fig. 1); (**B**) spending most time in

TABLE 1

Measurements (mm) and ratios of the genera *Tesia, Urosphena* and *Cettia*. (Number of specimens examined in brackets.)

	Wing (mean)	Tail (mean)	Tarsus (mean)	Wing/tail ratio	Wing/Tarsus ratio
Tesia castaneocoronata (10)	47.9	25.4	22.1	1.89	2.17
Tesia olivea (10)	46.5	18.3	22.6	2.54	2.06
Tesia cyaniventer (10)	48.9	17.9	23.7	2.73	2.06
Tesia superciliaris (8)	46.6	16.1	24.5	2.89	1.90
Tesia everetti (8)	51.0	18.7	23.7	2.73	2.15
Urosphena squameiceps (10)	52.9	29.3	18.2	1.81	2.91
Urosphena whiteheadi (5)	50.0	22.4	19.7	2.23	2.54
Urosphena subulata (7)	53.6	25.2	19.6	2.13	2.73
Cettia pallidipes (4)	49.6	39.5	19.6	1.26	2.53
Cettia major (4)	63.6	52.5	24.6	1.21	2.59
Cettia brunnifrons (10)	46.7	41.4	16.8	1.12	2.78
Cettia acanthizoides (10)	51.8	47.8	20.8	1.08	2.49
Cettia diphone cantans (5)	66.2	65.0	24.2	1.02	2.74
Cettia diphone cantans (5)	56.6	54.1	22.3	1.05	2.54
Cettia cetti (10)	61.0	58.6	21.6	1.04	2.82
Cettia fortipes (10)	54.2	50.9	20.5	1.06	2.64
Cettia vulcania everetti (10)	49.6	50.5	20.7	0.98	2.40
Cettia flavolivacea (6)	54.4	54.3	22.0	1.00	2.47

(3) The genus *Tesia*, including *everetti*, is characterised by (**A**) loud staccato songs in the 1–3 KHz range (Fig. 1); (**B**) spending most time in dense undergrowth rather than on the ground (although they are often seen on the ground); (**C**) a curious kind of sidewise movement along branches in the undergrowth when disturbed; (**D**) a wing/tarsus ratio of 1.90–2.17 (Table 1), compared to 2.54–2.91 for *Urosphena* and 2.40–2.82 for *Cettia*; and (**E**) a wing/tail ratio of 1.89–2.89 (Table 1), compared to 1.81–2.23 for *Urosphena* and 0.98–1.26 for *Cettia*.

I have here included *castaneocoronata* with *Tesia* because it conforms in all these aspects to *Tesia*, even though it differs in its longer tail (longer than tail coverts), thin bill and bright colours. Perhaps *Oligura* is best regarded as a subgenus of *Tesia*.

(4) The genus *Urosphena* is characterised by: (**A**) high-pitched monotone songs in the 8–10 KHz range which are difficult or impossible for many people to hear (Fig. 1); (**B**) spending most of the time on the ground (less often in undergrowth than *Tesia*); (**C**) lacking the curious sidewise movement of *Tesia*; (**D**) a wing/tarsus ratio of 2.54–2.91 (Table 1); and (**E**) a wing/tail ratio of 1.81–2.23 (Table 1).

Since *Urosphena* is such a distinct cluster, I prefer to treat it as a genus separate from *Cettia*. While the general behaviour of *Cettia* and *Urosphena* is similar, the songs of these 2 groups are radically different, as is their wing/tail ratio. It should be noted, however, that *C. acanthizoides* and *C. brunnifrons* have elements in their songs which resemble *Urosphena* (especially *acanthizoides*–see Orenstein & Pratt 1983), although at a lower pitch. *C. pallidipes* clearly does not belong to *Urosphena* and is not even particularly close to it.

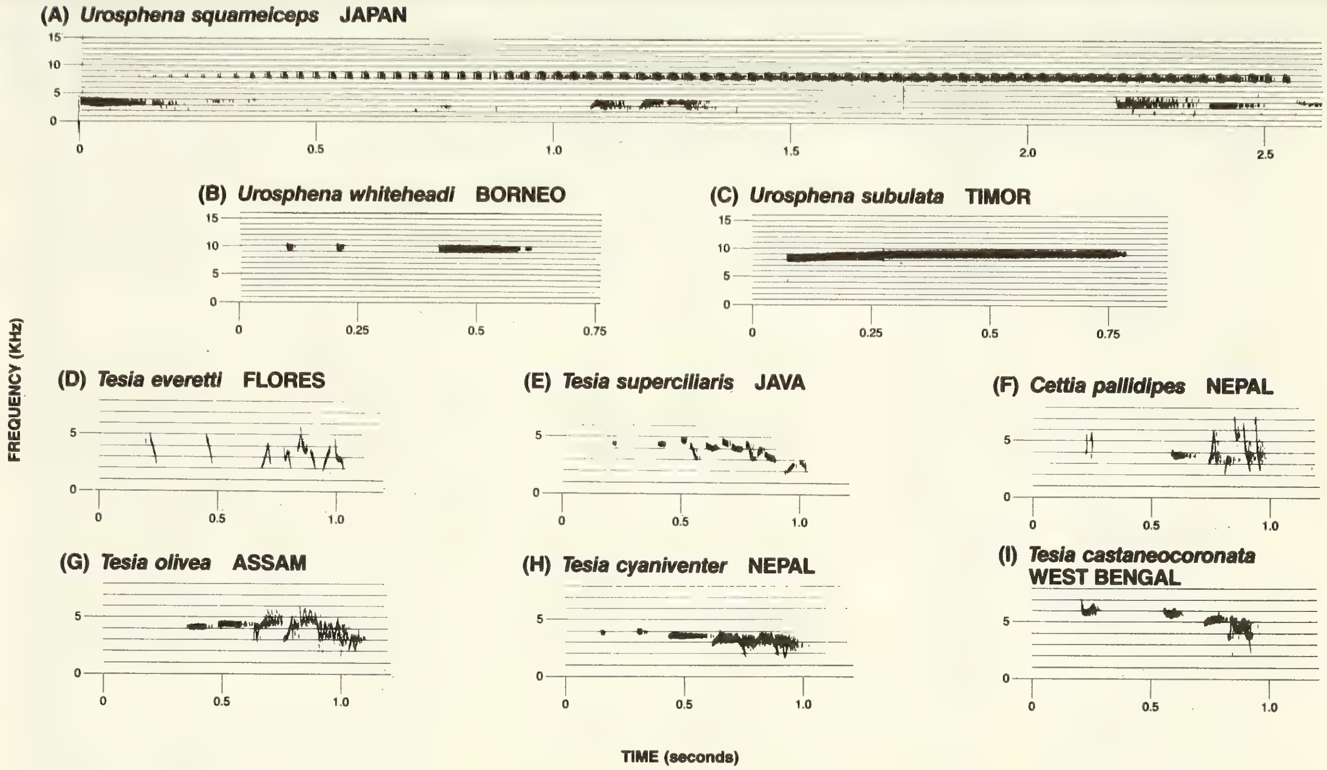

Figure 1. Sonograms of all the species of the genus *Urosphena* and *Tesia*, plus *Cettia pallidipes*. (A smaller scale is used for the genus *Urosphena*.) The 3 songs in the 2–5 KHz range on the *Urosphena squameiceps* sonogram are from *Cyanoptila cyanomelaena*. The entire song of *Urosphena squameiceps* is in the 7.5–9.5 KHz range. Compare (C) *Urosphena subulata* with *Tesia everetti*; and compare (F) *Cettia pallidipes* with (A), (B) and (C), the species of the genus *Urosphena*.

CONCLUSION

The genus *Tesia* consists of 5 species: *castaneocoronata, olivea, cyaniventer, superciliaris* and *everetti*, characterised by very short tails, loud staccato songs in the 1–3 KHz range, long legs, with which they often move through the undergrowth in a curious sidewise motion. The genus *Urosphena* consists of 3 species: *squameiceps, whiteheadi* and *subulata*, characterised by very short tails, high-pitched, barely audible monotonal songs in the 8–10 KHz range, and by spending most of their time on the ground. *Cettia pallidipes* is clearly a member of *Cettia* rather than of *Urosphena*.

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The status of the Rufous-chested Dotterel *Zonibyx modestus* in the Falkland Islands

by D. N. Carstairs

Received 6 February 1989

Introduction

The Rufous-chested Dotterel (or Winter Plover) *Zonibyx modestus* is found throughout the Falkland Islands during the austral spring and summer—from the beginning of August until the end of January. Conspicuous in plumage and behaviour, it occurs across a wide range of habitats, from coastal mudflats to hilly plateaux up to c.700 m a.s.l. It breeds commonly amongst the dry heaths (locally called 'hard camp') of extensive sheep-grazed moorland characterised by an admixture of white

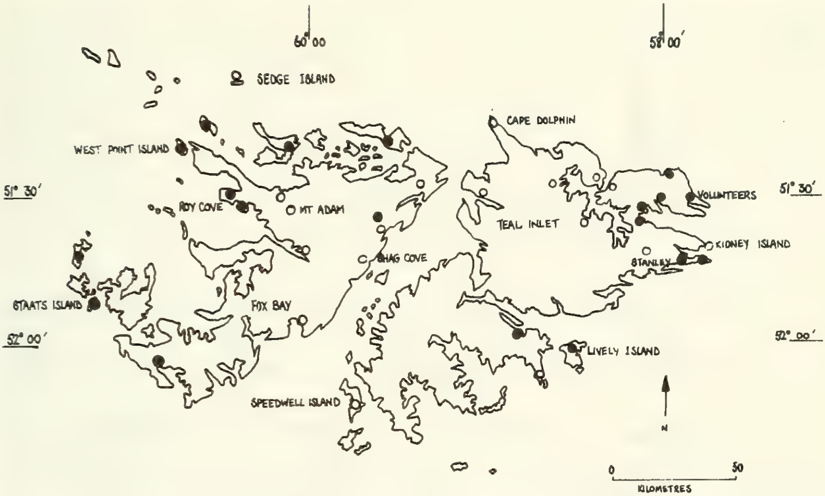
60°00
58°00'
SEDGE ISLAND
CAPE DOLPHIN
WEST POINT ISLAND
51°30'
ROY COVE
MT ADAM
TEAL INLET
VOLUNTEERS
51°30'
KIDNEY ISLAND
STANLEY
SHAG COVE
STAATS ISLAND
FOX BAY
52°00'
52°00'
LIVELY ISLAND
SPEEDWELL ISLAND
N
0
50
KILOMETRES

Figure 1. Falkland Islands showing principal areas visited ○ and Rufous-chested Dotterel *Zonibyx modestus* locations ● 1972–1974.

grass (*Cortaderia* sp.), ferns and the heath-like shrub, Diddle Dee *Empetrum rubrum*.

On the South American continent, the species breeds in the west along the sea-board of Chile, ranging for over 3000 km from 40°S to Cape Horn, 56°S; and in Argentina in the east, in Tierra del Fuego and the Magellanic Islands, moving northwards in winter to Uruguay and, rarely, as far as Sao Paulo, Brazil (23°S). In the west, the wintering range extends from Valdivia (40°S) to Atacama (24°S) (Meyer de Schauensee 1971).

In the Falkland Islands, over 500 km east of mainland South America, there has always been some conjecture about the status of *Z. modestus*. Abbott (1861) was certain enough to consider it "a migratory bird in East Falkland" and further believed that birds "disappeared entirely" by the end of April each year. Bennett (1926) was less certain, and while agreeing that it was a "common summer migrant and breeding", he considered that "a few remain throughout the winter". This view was shared by Cawkell & Hamilton (1961), citing pre-migratory build ups on west Falkland and visible migration over Stanley in East Falkland. Pettingill (1960) however, thought it unlikely that this species (or any other) regularly left the Falklands against the strong prevailing westerly winds. Woods (1975) believed that more birds were present during the winter than had been thought but that their dowdier plumage and inconspicuous behaviour at that time made them more difficult to see.

Fieldwork

I was resident in the Falkland Islands from January 1972 to December 1974, during which time I made 369 field trips throughout the countryside (Fig. 1), covering 23 settlements and surrounding areas, 5 outside

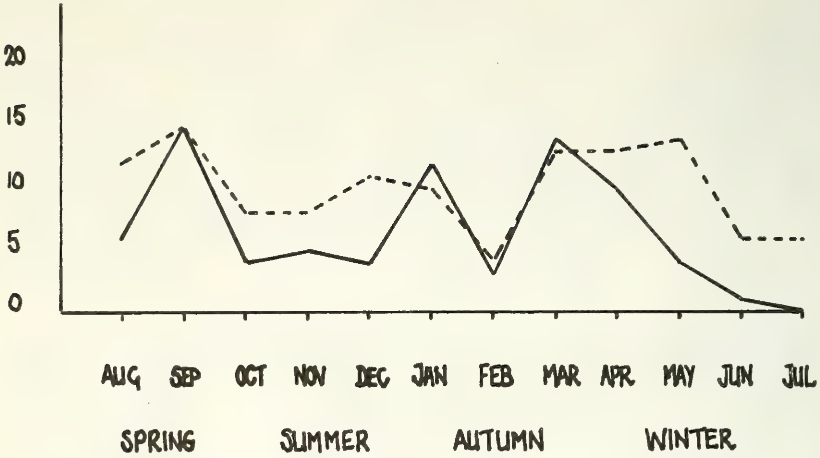

Figure 2. Total number of rufous chested dotterel *Zonibyx modestus* records/month – in relation to the mean number of field days/month. Falkland Islands 1972–1974 inc.

houses (shepherds' accommodation remote from settlements) and uninhabited localities noted for their wildlife, including Volunteers, Seal Bay (Port Louis settlement), Kidney and Staats Islands, Cape Dolphin and Elephant Beach. Hinterland moorland, including plateaux ground of Mount Adam, Mount Maria, Mount Kent and the Two Sisters, were visited on foot, while many other journeys were made between settlements on horse-back.

During the 3-year period, Rufous-chested Dotterels were recorded on 78 occasions, occurring in every month except July. Observer effort was reasonably constant throughout the recording period, though there was a natural tendency to spend less time in the field during the more inclement winter months (Fig. 2).

Taking the southern seasons in sequence, dotterels were first recorded in significant numbers at the end of August, their first appearance each year showing some synchrony: 10 on 25 August 1972, 3 on 26 August 1973, 30 on 7 September 1974 (Fig. 3). Numbers of records and size of flocks increased rapidly, peaking around early September (week 35), with flocks of up to 100 birds present. There then followed a rapid decline in flock size as birds paired and dispersed widely prior to breeding. By the third week in November (week 46) young were present. Towards the end of January mixed parties of juveniles and adults began to flock, often in association with Two-banded Plovers *Charadrius falklandicus* and White-rumped Sandpipers *Calidris fuscicollis*. Flocks occurred in both East and West Falkland at this time, peaking around the end of March (week 12). By late April (week 16) few birds remained, a situation which prevailed throughout the Southern winter. During 77 field trips in May, June and July of the 3 years, Rufous-chested Dotterels were recorded on only 5 occasions: 4 times in May, once in June and not at all in July. Only 2 winter records involved more than 5 birds: 20 at Volunteers, East

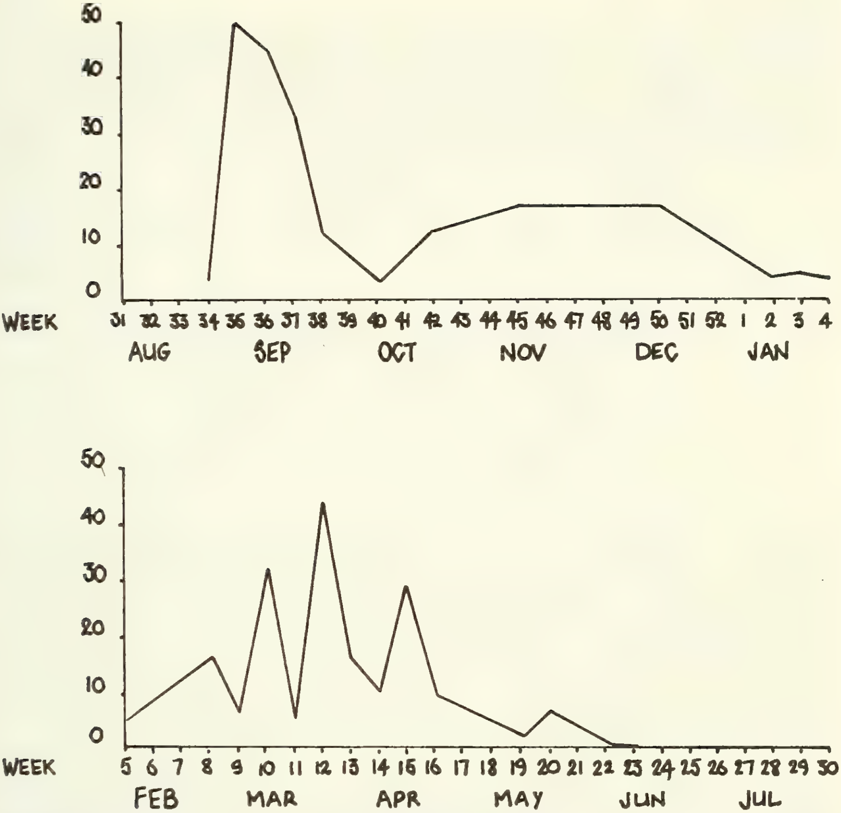

Figure 3. Mean number of rufous-chested *Zonibyx modestus* dotterels recorded by weeks (consecutive 7 day periods) 1972–1974 in the Falkland Islands.

Falkland on 20 May 1972 and 9 at West Point Island, West Falkland on 9 May 1973.

Conclusion

The appearance of flocks at about the same time each year in Aug/Sep, the rapid build up of flocks in March/April and disappearance by May, together with the paucity of records from May to July and in early August, suggest that a big majority of Rufous-chested Dotterels occurring in the Falkland Islands are migratory. Furthermore, in agreement with Woods (1975) and earlier authors, small flocks or individuals undoubtedly remain in isolated localities on both East and West Falkland.

Acknowledgements

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The Bahama Swallow *Tachycineta cyaneoviridis*; a summary

by P. William Smith and Susan A. Smith

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The Bahama Swallow *Tachycineta cyaneoviridis* is a little-known hirundinine which, except for a few apparently irregular appearances in Florida and Cuba, is endemic to the Bahama Islands. Until recently it was placed in the monotypic genus *Callichelidon* (Bond 1967, AOU 1983). Very little about its natural history or biology has been published. Our purpose is to bring together the most significant literature of the species and to add our own observations made during visits to the islands of Abaco 20–22 Jun 1986, Grand Bahama 28–30 Nov 1986, New Providence 23 Jun 1986 and 19 May 1988, Bimini 19 Sep 1987 and Andros 20–23 May 1988 (Fig. 1). PWS has also examined most of the known specimens of the Bahama Swallow (Table 1), namely those currently deposited in the British Museum (Natural History), Tring (BMNH), Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ), American Museum of Natural History (AMNH), Academy of Natural Sciences, Philadelphia (ANSP), U.S. National Museum of Natural History (USNM), Tall Timbers Research Station, Tallahassee, Florida (TTRS), Louisiana State University Museum of Zoology (LSUMZ) and the Field Museum of Natural History, Chicago (FMNH); he has not been able to examine those deposited at the Carnegie Museum of Natural History, Pittsburgh (CMNH) or elsewhere.

SPECIMEN RECORD AND HISTORY

The specimen record of the Bahama Swallow closely parallels the ornithological exploration of the Bahama Islands. The species was described by Henry Bryant, the first collecting ornithologist to visit the Bahamas, who secured 7 in April 1859 (Table 1). Charles Cory obtained another series in June 1879, of which at least 14 specimens, including 4 juveniles, are extant (Table 1). One of Cory's juveniles, deposited in the BMNH in 1885 and from the Salvin-Godman collection, became the basis for the only description of the immature of the species ever written (Sharpe

1885). This description has been widely quoted by others (e.g. Sharpe & Wyatt 1894, Ridgway 1904, Bond 1947) although it is based on a single (and somewhat unrepresentative) individual.

In 1884, Charles J. Maynard spent several months in the Bahamas and secured 14 specimens (Maynard 1896), mostly in January and March. PWS located 12 of these in 4 museums (Table 1), including one taken at Grassy Creek, Andros, the first from an island other than New Providence. During the next 25 years, various expeditions to the Bahamas, almost entirely in late winter and spring, secured about 50 additional specimens, including the firsts for Abaco in 1886 and Grand Bahama in 1891, the sole records for the Berry Islands and the Cay Sal Bank (both in 1891), and the only specimen for Eleuthera, in 1897 (Table 1).

In April 1890, W. E. D. Scott collected the first Bahama Swallow taken outside the Bahamas, at the Dry Tortugas, Florida (Table 1). A second reported specimen from Florida (Brewster 1897), however, is in fact a Tree Swallow *Tachycineta bicolor* (Smith & Browning 1989). The only other specimens secured outside the Bahamas were taken in Cuba: 2 at Nipe Bay in March 1914 and 5 near Guantánamo Bay in January 1917 (Table 1). Charles T. Ramsden, who collected the latter, is said to have seen them regularly during the winter months (J. Bond), but apparently he never published these observations. There seem to be no other reports of Bahama Swallows from Cuba.

The 36 specimens of the Bahama Swallow taken since 1920 and located by the authors are all adults collected on one of the known breeding islands—Abaco, Andros, Grand Bahama or New Providence (Table 1), of which 31 were taken between January and May. The remaining 5, secured 29 Nov 1968, are the only known specimens taken in autumn (Table 1); all are in immaculately fresh plumage, showing no traces of wear (Sievert Rohwer). Since no other specimens examined in the United States showed signs of moult, we assume that moult occurs in late summer and early autumn, as with the congeneric Tree Swallow (Dwight 1900). Except for a single immature in the BMNH secured on New Providence in Aug 1898, which we did not critically examine for moult, no Bahama Swallows apparently have ever been collected between 29 June and 29 Nov (Table 1).

NESTING

The nesting of the Bahama Swallow has been confused by anecdotal and second-hand reports of the species possibly breeding on ledges (Northrop 1891), in a hole on a wharf (Maynard 1896), in unspecified hollow trees (Bonhote 1903), in woodpiles (Brudenell-Bruce 1975), or under the eaves of houses, more especially on the British Colonial Hotel in Nassau (Allen 1905, Riley 1905, Bond 1936, 1966, Brudenell-Bruce 1975). Todd & Worthington (1911) were apparently the first to state from direct observation that the species nested in the Bahamian pinelands, in cavities in the Caribbean Pine *Pinus caribaea*. Emlen (1977), and ourselves in 1986 and 1988, found several nestsites in active use in live and dead pines, all in natural cavities or abandoned woodpecker holes c.8–15 m from the ground. In the pinelands of Grand Bahama, Bond (1972) observed them

TABLE 1
Discovered specimens of the Bahama Swallow *Tachycineta cyaneoviridis*

Museum and number	Age and Sex	Date	Collected Locality	Collector	Reference	Comments
MCZ 46837	ad. ♀	1.iv.1859	New Providence	H. Bryant	Bryant (1859)	*Ex* Thayer collection. Re-catalogued as 317829.
MCZ 46838	ad. ♂	1.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype
MCZ 46839	ad.	1.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype. Label is dated 1.v, conflicting with text.
MCZ 46841	ad. ♂	12.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype.
MCZ 46840	ad. ♂	17.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype.
ANSP 15639	ad.	–.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype. Collector's label removed.
USNM 11946	ad.	–.iv.1859	New Providence	H. Bryant	Bryant (1859)	Cotype. Not seen.
TTRS 3006	ad.	23.ii.1878	New Providence	L. J. K. Brace	—	*Ex*. Lawrence collection; was AMNH 40232.
FMNH 10926	♂	16.vi.1879	New Providence	C. B. Cory	Cory (1880)	Loaned to Guldenstope Museum in 1947, not seen.
FMNH 10927	♀	16.vi.1879	New Providence	C. B. Cory	Cory (1880)	Possible yearling, adult colours, but duller with shorter tail.
FMNH 10928	ad. ♀	16.vi.1879	New Providence	C. B. Cory	Cory (1880)	—
MCZ 30662	♀	16.vi.1879	New Providence	C. B. Cory	Cory (1880)	Probable adult but retains much brown above.
AMNH 40231	ad. ♂	17.vi.1879	New Providence	C. B. Cory	Cory (1880)	*Ex* Lawrence collection.
BMNH 1884.5.15.49	ad.	17.vi.1879	New Providence	C. B. Cory	Cory (1880)	Ex Sclater collection. Described by Sharpe (1885).
FMNH 10922	imm. ♂	17.vi.1879	New Providence	C. B. Cory	Cory (1880)	Pale brown above with slight green feathering, slight tail fork.
FMNH 10929	♂	17.vi.1879	New Providence	C. B. Cory	Cory (1880)	Possibly imm., but with some green on back.
BMNH 1885.3.24.88	ad. ♂	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	*Ex* Salvin-Godman collection. Described by Sharpe.
BMNH 1885.3.24.89	imm.	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	*Ex* Salvin-Godman collection. Basis of description of immature by Sharpe (1885).
FMNH 10916	imm.	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	Looks very young but shows some green on back.
FMNH 10919	imm. ♂	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	Retrices not fully grown in.
FMNH 10923	♀	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	Possible yearling, some green on back, strongly forked tail.
FMNH 10930	ad. ♂	19.vi.1879	New Providence	C. B. Cory	Cory (1880)	—
MCZ 322451	ad. ♀	8.i.1884	New Providence	C. J. Maynard	Maynard (1896)	Some brown on head.
AMNH 35456	♀	26.i.1884	New Providence	C. J. Maynard	Maynard (1896)	Possibly less than 1 yr old, shows much brown above.
AMNH 35458	ad. ♀	26.i.1884	New Providence	C. J. Maynard	Maynard (1896)	Shows a little brown above.
FMNH 10925	ad. ♂	26.i.1884	New Providence	C. J. Maynard	Maynard (1896)	Only has Cory's label, assumed collected by Maynard based on date.
USNM 109932	♀	26.i.1884	New Providence	C. J. Maynard	Maynard (1896)	*Ex* Cory collection. Mostly brown above but has full tail.
FMNH 10921	ad. ♂	27.i.1884	New Providence	C. J. Maynard	Maynard (1896)	Only has Cory's label, cf. FMNH 10925 above.
MCZ 213163	ad. ♂	27.i.1884	New Providence	C. J. Maynard	Maynard (1896)	—
MCZ 322453	ad. ♀	12.ii.1884	New Providence	C. J. Maynard	Maynard (1896)	—
AMNH 35457	ad. ♂	8.iii.1884	New Providence	C. J. Maynard	Maynard (1896)	—
AMNH 40230	ad. ♂	8.iii.1884	New Providence	C. J. Maynard	Maynard (1896)	*Ex* Cory and Lawrence collections.
MCZ 322452	ad. ♀	8.iii.1884	New Providence	C. J. Maynard	Maynard (1896)	—
MCZ 325022	♀	5.v.1884	Andros	C. J. Maynard	Maynard (1896)	Possible yearling, showing much brown on back.
USNM 108510	ad. ♀	10.iv.1886	Abaco	Albatross Exp.	Ridgway (1891)	Worn outer retrices gives short tail fork.
USNM 274640	ad.	7.vi.1886	Abaco	A. H. Jennings	—	Not from Albatross Exp.
BMNH 1886.9.15.466	♂	1886	New Providence	H. A. Blake	—	*Ex* Sclater collection. Collection details unknown. Age uncertain, probably immature.
BMNH 1886.9.15.467	♀	1886	New Providence	H. A. Blake	—	As BMNH 1886.9.15.466. Blake was the Governor of the Bahamas 1884–1887 (M. P. Walters).
BMNH 1886.9.15.468	♂	1886	New Providence	H. A. Blake	—	As BMNH 1886.9.15.466.
AMNH 54589	ad. ♂	12.ii.1890	New Providence	J. I. Northrop	Northrop (1891)	—

TABLE 1 cont.

Museum and number	Age and Sex	Date	Collected Locality	Collector	Reference	Comments
MCZ 228286	ad. ♂	7.iv.1890	Dry Tortugas, Florida	W. E. D. Scott	Scott (1890)	The only specimen from USA.
AMNH 54588	ad. ♂	15.iv.1890	Andros	J. I. Northrop	Northrop (1891)	Testes enlarged.
FMNH 10932	ad. ♀	3.iv.1891	Berry Is.	C. S. Winch	Cory (1891a)	—
FMNH 10924	ad.	17.v.1891	Cay Sal	C. S. Winch	Cory (1891c)	Well-forked tail but dull. Female?
FMNH 10931	ad. ♀	17.v.1891	Cay Sal	C. S. Winch	Cory (1891c)	—
FMNH 10917	♀	9.vi.1891	Abaco	C. S. Winch	Cory (1891b)	Loaned to Guldenstope Museum in 1947, not seen.
FMNH 10920	♀	9.vi.1891	Abaco	C. S. Winch	Cory (1891b)	Loaned to Swedish Museum in 1947. not seen.
FMNH 10933	♀	10.vi.1891	Abaco	C. S. Winch	Cory (1891b)	Loaned to Swedish Museum in 1947. not seen.
FMNH 10918	ad. ♂	29.vi.1891	Grand Bahama	C. S. Winch	Cory (1891b)	—
BMNH 1896.8.19.19	♀	20.iv.1896	Andros	N. Chamberlain	—	Possible yearling, shorter outer retrices, duller wing linings, than most full adults.
AMNH 755771	ad. ♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	*Ex* Sandford collection.
MCZ 103495	ad. ♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	—
MCZ 103496	ad. ♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	—
MCZ 103497	ad. ♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	—
MCZ 103499	ad. ♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	—
MCZ 310946	ad. ♂	26.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	—
AMNH 500703	ad. ♂	23.iv.1898	New Providence	J. L. Bonhote	Bonhote (1899)	—
BMNH 1924.4.10.82	imm.	17.viii.1898	New Providence	J. L. Bonhote	Bonhote (1899)	A slight bit of green colour on wing coverts.
BMNH 1924.4.10.83	ad. ♂	6.iii.1902	New Providence	J. L. Bonhote	Bonhote (1903)	—
USNM 189760	ad. ♂	23.vi.1903	New Providence	J. H. Riley	Riley (1905)	—
USNM 189761	imm. ♀	24.vi.1903	New Providence	J. H. Riley	Riley (1905)	Discussed in Smith & Browning (1989).
USNM 189762	imm. ♂	24.vi.1903	New Providence	J. H. Riley	Riley (1905)	Discussed in Smith & Browning (1989).
USNM 189763	imm. ♀	24.vi.1903	New Providence	J. H. Riley	Riley (1905)	Discussed in Smith & Browning (1989).
USNM 189829	ad. ♂	24.vi.1903	New Providence	J. H. Riley	Riley (1905)	—
AMNH 755772	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	*Ex* Sandford collection.
CMNH 30995	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 30996	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 30998	ad. ♀	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 31000	ad. ♀	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 31001	ad. ♀	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 31002	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
CMNH 31003	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	Not seen.
MCZ 317800	ad. ♂	14.iv.1909	Andros	W. W. Worthington	Todd & Worthington (1911)	—
CMNH 31060	ad. ♀	27.iv.1909	Abaco	W. W. Worthington	Todd & Worthington (1911)	Not seen.
AMNH 755773	ad. ♀	28.iv.1909	Abaco	W. W. Worthington	Todd & Worthington (1911)	*Ex* Sanford collection.
CMNH 31083	ad. ♂	29.iv.1909	Abaco	W. W. Worthington	Todd & Worthington (1911)	Not seen.
MCZ 65504	♂	8.iii.1914	Nipe Bay, Cuba	W. C. Forbes	Bangs (1914)	Possible yearling showing much brown.
MCZ 65505	♀	8.iii.1914	Nipe Bay, Cuba	W. C. Forbes	Bangs (1914)	Possible yearling showing much brown.
USNM 454089	ad.	30.i.1917	Guantánamo Prov., Cuba	C. T. Ramsden	Garrido & Garcia (1975)	—
USNM 454090	ad.	30.i.1917	Guantánamo Prov., Cuba	C. T. Ramsden	Garrido & Garcia (1975)	—
USNM 257092	ad. ♂	25.v.1921	Andros	P. Barteck	—	—
AMNH 755774	ad. ♂	29.i.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755775	ad. ♂	30.i.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755776	ad. ♂	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.

TABLE 1 cont.

Museum and number	Age and Sex	Date	Collected Locality	Collector	Reference	Comments
AMNH 755777	ad. ♂	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755778	ad. ♂	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755779	ad. ♂	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755780	ad. ♀	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755781	ad. ♀	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755782	ad. ♀	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755783	ad. ♀	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
AMNH 755784	ad. ♂	17.ii.1922	New Providence	L. C. Sanford	—	*Ex* Sanford collection.
MCZ 160938	ad. ♂	15.iii.1934	Abaco	J. C. Greenway, Jr	—	—
MCZ 160939	ad.	15.iii.1934	Abaco	J. C. Greenway, Jr	—	—
MCZ 160940	ad. ♂	15.iii.1934	Abaco	J. C. Greenway, Jr	—	—
MCZ 160941	ad. ♀	15.iii.1934	Abaco	J. C. Greenway, Jr	—	—
MCZ 171694	ad. ♂	24.iv.1936	Grand Bahama	J. C. Greenway, Jr	—	—
MCZ 171695	ad. ♀	26.iv.1936	Grand Bahama	J. C. Greenway, Jr	—	—
MCZ 171696	ad. ♂	28.iv.1936	Grand Bahama	J. C. Greenway, Jr	—	—
MCZ 171697	ad. ♀	28.iv.1936	Grand Bahama	J. C. Greenway, Jr	—	—
CMNH 131010	ad. ♂	18.iv.1946	Abaco	A. C. Twomey	—	Not seen.
CMNH 131011	ad. ♂	18.iv.1946	Abaco	A. C. Twomey	—	Not seen.
CMNH 131055	ad. ♂	28.iv.1946	Grand Bahama	A. C. Twomey	—	Not seen.
CMNH 131056	ad. ♂	28.iv.1946	Grand Bahama	A. C. Twomey	—	Not seen.
CMNH 131057	ad. ♀	28.iv.1946	Grand Bahama	A. C. Twomey	—	Not seen.
LSUMZ S–7019	ad. ♂	10.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ S–7016	ad. ♂	11.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ S–7058	ad. ♂	14.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ S–7059	ad. ♀	14.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ S–7060	ad. ♂	14.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ 64957	ad. ♂	15.iv.1965	Abaco	D. W. Buden	—	Synoptic series. *Ex* Schwartz collection.
LSUMZ S–7104	ad. ♂	18.iv.1965	Abaco	D. W. Buden	—	*Ex* Schwartz collection, not re-catalogued.
LSUMZ S–8017	ad.	29.xi.1968	Andros	J. A. Rodgers	—	*Ex* Schwartz collection, not re-catalogued. All feathers fresh, little wear.
LSUMZ S–8018	ad. ♂	29.xi.1968	Andros	J. A. Rodgers	—	As LSUMZ S–8017.
LSUMZ S–8019	ad.	29.xi.1968	Andros	J. A. Rodgers	—	As LSUMZ S–8017.
LSUMZ S–8021	ad.	29.xi.1968	Andros	J. A. Rodgers	—	As LSUMZ S–8017.
LSUMZ S–8022	ad. ♂	29.xi.1968	Andros	J. A. Rodgers	—	As LSUMZ S–8017.
Additional known specimens, not seen or found catalogued						
2 specimens		1884	New Providence	C. J. Maynard	Maynard (1896)	Disposition unknown.
2 specimens	♂♂	8.iii.1897	New Providence	C. J. Maynard	Bangs (1900)	*Ex* Bangs collection. Disposal unknown.
1 specimen	♀	24.iv.1897	Eleuthera	C. J. Maynard	Bangs (1900)	*Ex* Bangs collection. Disposal unknown. The only specimen from Eleuthera.
3 specimens		30.i.1917	Guantánamo Prov., Cuba	C. T. Ramsden	Garrido & Garcia (1975)	Disposal unknown. Possibly still in Cuba.

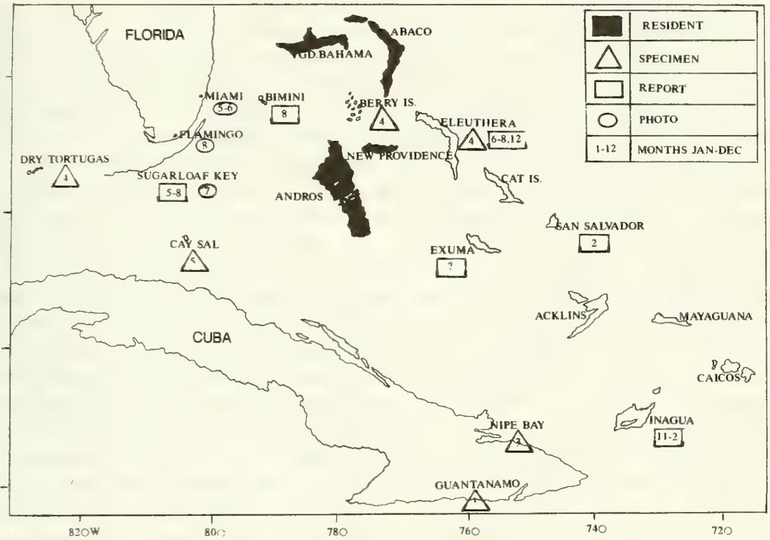
FLORIDA
GD.BAHAMA
ABACO
MIAMI
5-6
BIMINI
8
BERRY IS.
4
ELEUTHERA
4
6-8,12
FLAMINGO
8
DRY TORTUGAS
4
SUGARLOAF KEY
5-8
7
NEW PROVIDENCE
CAT IS.
ANDROS
SAN SALVADOR
2
CAY SAL
5
EXUMA
?
ACKLINS
MAYAGUANA
CUBA
CAICOS
INAGUA
11-2
NIPE BAY
3
GUANTANAMO
RESIDENT
SPECIMEN
REPORT
PHOTO
1-12
MONTHS JAN-DEC
26°N
24°
22°
20°
82°W
80°
78°
76°
74°
72°

Figure 1. Known range of the Bahama Swallow *Tachycineta cyaneoviridis*

occupying 2 bird boxes intended for Wood Ducks *Aix sponsa*, but he did not know whether they actually laid in the boxes (J. Bond).

While it possibly nests in other situations, there are no published observations whatever of the Bahama Swallow definitely breeding anywhere except in pine cavities. We specifically looked for nests at the British Colonial Hotel in Nassau, where observers presumed they were breeding in 1965 (Bond 1966), and where Brudenell-Bruce (1975) asserted, apparently inferentially, that they certainly nested. We found no sign of their presence there in June 1986, nor in May 1988, despite seeing numerous holes under the eaves of the hotel. On Andros in 1988, we observed Bahama Swallows apparently prospecting for nest sites; on 20 May and successive days, we watched as pairs flew up to tree knots and gaping holes in the eaves and cornices of private houses. Such behaviour continued for several minutes, before the birds left the area; then the same, or different pairs, were seen behaving similarly at the same site later. We believe that nesting of the species on Andros, and probably throughout its range, is limited by a lack of suitable nesting cavities, and that non-nesting pairs search continually during the breeding season for appropriate sites.

As far as we can determine, the nest and eggs of the Bahama Swallow are unknown to science. A search of North American collections in 1985 failed to locate any eggs of this species (Lloyd Kiff), and there are none in the BMNH or listed in *Handbüch der Oologie* (Michael Walters). Bond's (1936) reference to the nest as being partially composed of seaweed may have been inferred from Todd & Worthington's (1911) observation of the species gathering mouthfuls of seaweed before flying towards the pinelands. Bond's (1936) statement that the eggs resemble those of the

Violet-green Swallow *Tachycineta thalassina* was based on an oological advertisement of unknown validity; he never actually saw a nest or eggs (J. Bond). Brudenell-Bruce's (1975) statement that the clutch is said to be 3 white eggs may have been inferred from Bond's (1961) apparent supposition that its nesting was similar to that of the Golden Swallow *Tachycineta (Kalochelidon) euchrysea*, of Hispaniola and Jamaica.

Nesting of the Bahama Swallow normally begins in April, when the species moves from its winter habitat over marshes and old fields to the pinelands (Emlen 1977). A male collected by Northrop (1891) on 15 April 1890 showed much-enlarged testes. For the congeneric Tree Swallow *T. bicolor*, Bent (1942) describes a nesting cycle of about 7 weeks: 2 weeks for nest building, 2 weeks for incubation, and 3 weeks for fledging the young. This is consistent with our observations of Bahama Swallows. We discovered one occupied nest cavity in the trunk of a live Caribbean pine on Andros on 21 May 1988. The cavity appeared to be an abandoned woodpecker hole c.5 cm in diameter, c.12 m above the ground. The Hairy Woodpecker *Picoides villosus* is a "fairly common" resident of the Bahamian pinelands (Brudenell-Bruce 1975) and one which we did see in the vicinity. Then and on the following day, the female Bahama Swallow (presumed so on duller plumage) remained in the cavity for extended periods, while the male regularly stood by on a twig near the entrance. On 23 May, both adults entered the nest hole every few minutes for very brief periods, suggesting that hatching had occurred between 22 and 23 May. We saw no juveniles on Andros in May 1988. The seasonally earliest immature specimen known was secured 17 June 1879 (Table 1), and on Abaco we saw several juveniles peering out of nests and perching nearby on 22 June 1986. We cannot say whether the species is double-brooded, for there are few published observations of Bahama Swallows after June. Allen (1905) saw them on New Providence, Abaco, and Grand Bahama in July 1904, but did not report nesting activity, nor did Bonhote (1899), who observed them sparingly on New Providence between April and November 1898. The North American congeners of *T. cyaneoviridis*, however, are normally single-brooded (Bent 1942).

BREEDING RANGE AND POPULATION SIZE

We concur with Bond (1936) and the AOU (1983) that the nesting range of the Bahama Swallow normally is limited to the northern Bahamian islands of Grand Bahama, Abaco, New Providence and Andros, i.e. where the only definite nest sites have been located. These are the only islands in the Bahamas where there are extensive tracts of the Bahamian variety of *Pinus caribaea* (Henry 1974). The Bahama Swallow has never been reported from the Caicos Islands in the southern Bahamas (Buden 1987), where a few cays also have natural tracts of *Pinus caribaea* (Henry 1974). Possibly, isolated pairs nest occasionally in southern Florida, where there are tracts of the similar *Pinus elliottii* (W. Robertson); on Sugarloaf Key, a few km from one such tract, 2 adults, later with one young, were seen by several observers between 3 May and 14 July 1974 (Edscorn *et al. in* Kale 1974, Sykes *et al. in* Ogden 1974). However, repeated searches of the area by ourselves 1986–88 and by others in earlier years did not suggest that the species regularly nested in the Florida Keys. There is no evidence that the Bahama Swallow has ever nested in Cuba; its current status there is unknown.

Logging of the pines in the Northern Bahamas has probably had a major impact on the Bahama Swallow's population. Northrop (1891) described the species as abundant on Andros in 1890. In 1988 we found it decidedly uncommon and very patchily distributed there. Andros' pines were selectively logged for timber mainly between 1948 and 1967, and thereafter were virtually clearcut for pulpwood until about 1974 (Henry 1974, Campbell 1978). The other pine-covered islands were logged in a similar fashion, although active timbering had virtually ceased by 1929 on New Providence, by 1944 on Abaco and by 1956 on Grand Bahama (Henry 1974). Clearcutting for pulpwood peaked on Grand Bahama in 1959 and on Abaco in 1966 (Henry 1974). Although clearcutting is no longer in progress anywhere in the Bahamas, and considerable pine regeneration has occurred, nearly all the pinelands, at least on Andros, are plantation-like, with similarly aged trees and little or no standing dead wood, though we found some small stands of larger trees, where clearcutting may have been uneconomic, which encompassed some standing dead trees. In this association we located most of the Bahama Swallows that we saw, including the only active nest cavities we found on Andros and New Providence. On Abaco, we found Bahama Swallows to be most numerous in June 1986 in an area of the southern part of the island, which also had escaped recent clearcutting (King *et al.* 1979).

While driving 96.4 km at speeds under 30 kph, with frequent stops, along main and old logging roads through the Andros pinelands on 20–21 May 1988, we recorded 11 single (presumed breeding male) and 16 twosomes (presumed pairs) of Bahama Swallows. If we had detected all male Bahama Swallows breeding within 103 m of the road, the breeding density would be about 1.3 prs/km^2 of pineland. Based on Henry's (1974) determination that there were at that time about 1782 km^2 of pinelands on the 4 islands where the species is known to breed, the total breeding population of the Bahama Swallow would be about 2400 prs. While there are many reasons that this crude technique could either exaggerate or underestimate the breeding population, we think it yields an estimate of the correct order of magnitude. We doubt that there are more than 10,000 or less than 1000 living Bahama Swallows. Emlen (1977) reported a wintering population density on Grand Bahama of 6.8 birds/km^2, confined mainly to marsh and old field associations. We cannot relate this figure to ours because we do not know the amount of such habitat on Grand Bahama, nor the extent to which the species winters there. In November 1986, we were able to locate a total of only about 20 Bahama Swallows on Grand Bahama, in only one of several apparently suitable foraging areas.

NON-BREEDING MOVEMENTS

The phenology of the Bahama Swallow is poorly known. After nesting, it appears to disperse somewhat to the west and south. In the summer of 1986, we photographed different juvenile Bahama Swallows in Florida on Big Pine Key on 27 Jul and at Flamingo on 23 Aug; several other credible reports exist for Florida at this season, mostly of immatures (Smith & Smith, *in prep.*). Vaurie (1953) reported seeing Bahama Swallows daily on Bimini 14–24 Aug 1951, but we failed to find any there in Sep 1987. During 5 years of field observation on Eleuthera in the 1970s, Connor & Loftin (1985) considered Bahama Swallows to be scarce summer visitors between 8 Jun and 12 Aug, while J. Greenlaw reported seeing a small flock there at Gregory Town on 24 Dec 1979 (Bond 1982).

Farther south in the Bahamas, there are sight reports of this species on: Watling's Island (=San Salvador) in Feb (Bond 1976); Exuma, month unstated (Bond 1968); and on Inagua between late Nov and early Feb (Buden 1987). In Cuba, Ramsden's 5 January specimens and other winter observations all were from the southeast portion of the island (Garrido & Garcia 1975). The 2 Cuban specimens from Mar were secured at Nipe Bay on the northeast coast, possibly suggesting a return movement, as might Apr and May specimens from the Dry Tortugas, Cay Sal and Eleuthera (Table 1). Several credible sight reports for Florida also exist in spring (Smith & Smith *in prep.*).

While evidently partially migratory, we doubt that the Bahama Swallow is largely so, as suggested by Bond (1947). We and others, including Emlen (1977), have seen Bahama Swallows on Grand Bahama in Nov and during the winter. Rodgers secured several specimens from Andros during Nov, and the species is regularly reported there in Dec during Christmas counts (e.g. Wynn 1987, Perkins 1987). Taken with the many old Jan specimens from New Providence and Bonhote's (1899) observations from New Providence during summer and autumn, available data do not point to an extensive postbreeding dispersal or migration. We believe that the bulk of the population, especially of adults, probably remains within the primary breeding range in the northern Bahamas throughout the year.

CONCLUSION

In summary, we believe the Bahama Swallow is now a fairly rare species, with a current population of under 10,000 individuals. Most of the published material about its life history is suppositive or represents an elaboration upon earlier authors' work. Its breeding range is normally limited to 4 pine-forested islands in the northern Bahamas, nesting mainly occurring in natural cavities and old woodpecker holes in *Pinus caribaea*. Its breeding biology is essentially unknown. Mid-20th century clearcutting of its breeding environment, as well as on-going agricultural and human development, has probably caused a significant decline in its numbers over the past century. Cessation of logging suggests that its declining population may have levelled off, at least temporarily. Although little is definitely known about its movements, a portion of the population, perhaps consisting mainly of juveniles, disperses southward and westward to Florida, the southern Bahamas and Cuba after breeding. Nevertheless, most individuals probably remain within the breeding range throughout the year. More data, particularly in autumn and winter, and more fieldwork in eastern Cuba, would be useful to gain a better understanding of its range.

Since the species' population seems to be constrained by the availability of nest cavities, and because other members of its genus have readily adapted to nest boxes (Bent 1942), the success and long-term survival of the Bahama Swallow might easily be enhanced. To our knowledge, however, no systematic attempt has been made to undertake a nest box programme for the species. We believe that this would be an ideal project for the school children of the Bahamas and hope that suitable funding and leadership in that direction will be forthcoming.

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The nomenclature of some African barbets of the genus *Tricholaema*

by R. J. Dowsett

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Short & Horne (1987) have pointed out that the genus of African barbets (Capitonidae) *Tricholaema* J. & E. Verreaux 1855 (*J. Orn.* 1855: 102) was treated as feminine by the describers. The type species was designated by the Verreaux brothers as *T. flavipunctata (sic),* now considered a race of *T. hirsuta.* (Through a *lapsus calami* Short & Horne (1987) refer to this form as *T. h. punctata*). *Tricholaema* orginates from the Greek words *thrix (thrichos)* and *laimos*, respectively of feminine and masculine gender; it would seem to fall under Article 30 (a) (iii) of the International Code of Zoological Nomenclature (1985 edition), the ending being latinized and the gender intended by the describers to be feminine. White (1965: 258), under *Lybius hirsutus flavipunctatus*, misquotes the original name as *T. flavipunctatum*, attributes the description to but one Verreaux and gives the page number in *J. Orn.* as 102, page 103 being correct (only the genus was described on the preceeding page). Unfortunately Short & Horne (1987) went on to introduce some new errors of nomenclature in this genus, and these were adopted by Fry *et al.* (1988).

Bucco leucomelas Boddaert 1783 is transferred by Short & Horne to *Tricholaema* and is called *T. leucomelaina*, since the change is from a masculine to a feminine genus. However, the I.C.Z.N. (1985) made it clear that species-group names ending in *-melas* are not latinized and must be considered indeclinable, remaining unchanged whatever the gender of the genus (Art. 31 (b)).

T. lacrymosa Cabanis 1878 (*J. Orn.* 1878: 205, 240) is wrongly spelt *lachrymosa* by Short & Horne (1987) and also by Fry *et al.* (1988), who err in giving its original citation by Cabanis as *lachrymosum*. Like the Verreaux brothers, Cabanis treated *Tricholaema* as a feminine genus. It seems to have been from about 1893, when Reichenow named *T. flavibuccale*, that most authors began to treat *Tricholaema* as neuter.

Acknowledgements

I thank Dr L. L. Short for reading a draft of this note.

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Wing-clapping display of Dupont's Lark *Chersophilus duponti*

by C. J. Hazevoet

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On 11 and 12 May 1988, I visited the Nature Reserve 'La Lomaza' near Belchite, Zaragoza, Spain. The area consists of undisturbed steppe habitat amidst agricultural fields. (For a description of this habitat, see

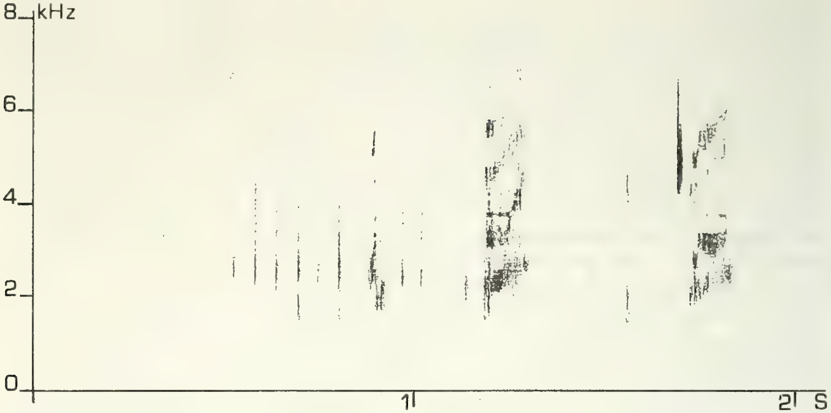

Figure 1. Wing-clapping display of Dupont's Lark *Chersophilus duponti*. Spain, May 1988 (C. J. Hazevoet).

Guiral Pelegrín & Hernández Fernández 1988.) In the reserve, quite high numbers of Dupont's Lark *Chersophilus duponti* were present. Dupont's Lark is well known for its distinctive, fluting song, which is delivered either while perched or during a song-flight. The latter can be long, high and circling, or short, low and straight. It was during the short type of song-flight that I repeatedly noticed distinctive bursts of wing-clapping which I eventually managed to record on tape (Fig. 1). During this song-flight, the bird would silently rise from the ground at an angle of 45° to about 10 m, then—while still rising—perform c.10 wing-claps followed by a few more which were interpersed with a short version of the song, after which a silent descent followed. The wing-claps were clearly audible at distances up to 50 m. The sound was first noticed at 5.00 a.m. when it was still completely dark. At that hour, I was unable to trace the source. As the sun rose, the frequency of the wing-clapping increased, being at its peak at about 11.00 a.m., after which the birds gradually became more and more silent. Song was resumed at sunset but no wing-clapping was noticed. It appears that this display has not been described before (cf. Cramp 1988).

Wing-clapping displays in the Alaudidae are only known in some members of the genus *Mirafra*. In these, they vary from a short wing noise given during jumps from a perch in *M. africana,* to long and nearly exclusively non-vocal display flights in *M. rufocinnamomea*. Other species giving wing-clapping displays are *M. apiata* and *M. collaris* (Mackworth–Praed & Grant 1960, Maclean 1985).

Meinertzhagen (1951) merged *Chersophilus* in *Certhilauda*, remarking that no member of *Certhilauda* has a clapping-flight "which is characteristic of *Mirafra*". However, as White (1952) pointed out, clapping flight is confined to only a few species in *Mirafra* and is in no way typical of the genus as a whole. Meinertzhagen's *Certhilauda* appears to be an artificial assemblage, including several species often placed in small or monotypic genera: besides *Chersophilus*, these are *Alaemon, Pseudalaemon* and *Chersomanes*. The remaining 'real' *Certhilauda* are now regarded as congeneric with *Mirafa* (cf. White 1957, 1959, Maclean 1969, 1970).

White (1957) remarked that *Chersophilus* in its general appearance suggested "possible origin from *Mirafra*, such as *M. africana*", but preferred to keep it as a monotypic genus pending further information. Later, White (1959) stated that *Chersophilus* is close to *Alauda* and *Galerida*. Harrison (1966), being in agreement with this view, found that its specialized features justify its retention as a monotypic genus. Without a phylogenetic analysis of the intrafamilial relationships in the Alaudidae, it is not possible to decide whether *C. duponti* is more closely related to *Alauda/Galerida* or to *Mirafra*. The above described display at least shows that wing-clapping in the Alaudidae is not limited to some of the *Mirafra* species.

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BOOKS RECEIVED

Iapichino, C. & Massa, B. 1989. *The Birds of Sicily*. Pp. 170. Photographs and maps. British Ornithologists' Union Check-list No. 11. £16 (£18 overseas). Hard covers. 25 × 16 cm.

A comprehensive systematic list of all species recorded in Sicily, with a complete bibliography and introductory sections which cover the history of Sicilian ornithology, geography, climate, vegetation, migration, breeding, conservation and other aspects of the avifauna. There is also a gazetteer and a long list of ringing recoveries. Emphasis is given to continuing illegal shooting of birds, particularly the huge slaughter of raptors as a traditional 'sport'. Drainage of wetlands, deforestation and the ever expanding urban sprawl also are incriminated in the near or actual extinction of several species of breeding and wintering birds.

The authors are highly qualified for the task of assessing Sicily's avifauna, having in particular done extensive work organising and researching *Atlas Faunae Siciliae—Aves* (see Bull. Brit. Orn. Cl. 107: 192) and they have produced most successfully an important and reliable basis on which the future of Sicily's birds and the success of conservation there can be judged.

Ewans, M. 1989. *Bharatpur, Bird Paradise*. Pp. 144. Profusely illustrated in colour photographs by Thakir Dalip Singh, Rajpal Singh, James Hancock and others. H. F. & G. Witherby. £14.95. Hard covers. 19.5 × 25 cm.

An introduction to the famous Keoladeo Ghana National Park in Bharatpur by Sir Martin Ewans, whose extensive knowledge and appreciation of this immensely valuable wetland were acquired while he was Deputy High Commissioner in New Delhi 1978–1982.

The 29 km^2 of this National Park was originally an artificial creation of the Maharajah of the 1890s, primarily for shooting waterfowl, reliant on the monsoons and even more so today on huge and expensive irrigation works, without which the area would die. During the 2 decades up to 1982, visitors, traffic, swarms of cattle, as well as droughts—especially 1979–80—destroyed much of the grass, and one quarter of all trees disappeared. However, in 1982 control was re-established, the area having been declared a National Park in 1981. The socio-economic problems are immense and the worst danger is human poverty and the essential need for the grazing of cattle and the requirement of wood fuel for the local population—in contrast to Europe and the States where the threat is affluence and the ensuing increase in leisure time and pursuits. Bharatpur is a "beseiged enclave". Today it is still suffering from the disastrous drought of 1983, the effects of which have not yet abated nor been overcome. Management is complicated and on a huge and expensive scale.

The author presents an excellent overall picture of this prime wilderness and is well served by some high quality photographs, mainly of the selected species with which he deals, very much with a mind to the European visitor it would seem. The result is an interesting, decorative and informative short volume, with an unemotional but warm presentation in the final pages of the difficulties ahead for Bharatpur, as there are for all animal paradises, not only those away from the western world.

Hill, D. 1989. *The Avocet*.
Simmons, K. E. L. 1989. *The Great Crested Grebe*

Both Pp. 24 with many coloured and black-and-white photographs. Shire Publications. £1.95. Soft covers. 15 × 21 cm.

The latest 2 accounts in this excellent series by well-chosen experts. David Hill has been senior ecologist for the RSPB, while Ken Simmons has been studying grebes world wide for 40 years. Beautifully illustrated and lucidly written for the intelligent and interested budding ornithologist, these booklets and the others in the series are to be strongly recommended.

Packham, C. 1989. *Deciduous Woodlands*. Pp. 128
Grasslands. Pp. 128
Shorelands. Pp. 128
Heathlands. Pp. 112

Fulsomely illustrated with the author's colour photographs and by colour plates by C. Shields. Collins Wild Habitats. £4.95 each. Soft covers. 13 × 19 cm.

These 4 small volumes result from the author's success in BBC's 'Really Wild Show' and the photographs reflect the appropriateness of his Wildlife Photographer of the Year award 4 years running. The text is racey and informative on selected species of birds, mammals, flowers etc—chapters have such headings as 'Sleeping with Alice', which in fact is concerned with the dormouse and rather inexplicably the Hornet. Unusual, the photographs in particular.

NOTICE TO CONTRIBUTORS

Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin*. They should be typed on one side of the paper, with treble-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper*. Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*. Informants of unpublished observations should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". A limited number of photographic illustrations in black-and-white may be published annually at the Editor's discretion. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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CONTENTS

Page

CLUB NOTES 125

DR WERNER SUTER. Feeding ecology of Cormorants wintering in Switzerland 125

P. C. GONZALES & R. S. KENNEDY. Notes on Philippine Birds, 14. Additional records for the island of Palawan 126

P. A. CLANCEY. Subspeciation in the Larklike Bunting of the south-western Afrotropics 130

———. The southern isolate of *Parus rufiventris pallidiventris* Reichenow, 1885 134

C. B. FRITH & C. J. O. HARRISON. An undescribed plumage of the Crested Bird of Paradise *Cnemophilus macgregorii* 137

J. R. KING. Notes on the birds of the Rio Mazan Valley, Azuay Province, Ecuador, with special reference to *Leptosittaca branickii, Hapalopsittaca amazonina pyrrhops* and *Metallura baroni* 140

P. G. RYAN. Common Nighthawk *Chordeiles minor* and new records of seabirds from Tristan da Cunha and Gough Islands 147

S. E. DAVIS. Migration of the Mississippi Kite *Ictinia mississippiensis* in Bolivia, with comments on *I. plumbea* 149

D. M. TEIXEIRA, J. B. NACINOVIC & G. LUIGI. Notes on some birds of northeastern Brazil (4) 152

R. W. DICKERMAN. Notes on *Sturnella magna* in South America with a description of a new subspecies 158

———. Notes on the Malachite Kingfisher *Corythornis (Alcedo) cristata* 158

BEN KING. The avian genera *Tesia* and *Urosphena* 162

D. N. CARSTAIRS. The status of the Rufous-chested Dotterel *Zonibyx modestus* in the Falkland Islands 166

P. W. & S. A. SMITH. The Bahama Swallow *Tachycineta cyaneoviridis*; a summary 170

R. J. DOWSETT. The nomenclature of some African barbets of the genus *Tricholaema* 180

C. J. HAZEVOET. Wing-clapping display of Dupont's Lark *Chersophilus duponti* 181

BOOKS RECEIVED 184

The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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Edited by
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Volume 109 No. 4 December 1989

FORTHCOMING MEETINGS

Tuesday, 16 January 1990. Jeffery Boswall will show the film **"Moving Images in the Cause of Bird Protection".**

Those wishing to attend should notify the Hon. Secretary at 1 Uppingham Road, Oakham, Rutland, LE15 6JB by Tuesday, 2 January 1990*.

Jeffery Boswall is the Head of the Film and Video Unit of the RSPB.

Tuesday, 20 February 1990. Yeugeniy Potapov will speak on **"Some Birds of Lowland Tundra in N.E. Siberia".**

Those wishing to attend should notify the Hon. Secretary by Tuesday, 6 February 1990*.

Yeugeniy Potapov is based in the USSR at Magadan, on the Sea of Okhotsk, where he has been doing field-work. He is at present a post-graduate student at the Edward Gray Institute and has brought with him some excellent slides from Russia.

Tuesday, 13 March 1990. Mr T. J. Roberts will speak on **"Birds of Pakistan".**

Those wishing to attend should notify the Hon. Secretary, as above, by Tuesday, 27 February 1990.*

Mr Roberts lived and worked in Pakistan from 1952 to 1984 and has a 2-volume work on "The Birds of Pakistan" currently in press.

Tuesday, 8 May 1990. Dr R. J. Cowie will speak on **"The Ecology of Tits in Suburban Habitats".**

Tuesday, 29 May 1990. Mr J. E. Cooper, FRCVS will speak on **"Birds and Diseases".**

Tuesday, 19 June 1990. Dr Margaret Carswell will speak on **"The Uganda Atlas of Birds".**

Meetings are held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6.15 pm for 7 pm.

*It is usually possible to take acceptances up to the weekend before a meeting, but Members are asked to accept by 14 days before a meeting as the numbers attending must be notified. A plan showing Imperial College will be sent to members on request.

If you accept and subsequently find you cannot attend please notify the Hon Secretary (tel. 0572 722788) as soon as possible.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 109 No. 4 Published: 13 December 1989

The seven hundred and ninetieth Meeting of the Club was held in collaboration with the West African Ornithological Society in the Ante Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 26 September 1989 at 7 pm., 35 members and 21 guests attended.

11 Members of both the Club and WAOS (*marked * below*) were present.

J. H. Elgood*, *Vice-Chairman of the Club and Vice-President of WAOS was in the Chair.*

Members of the Club present were: Dr G. Morel*, (*President, WAOS*), M. A. Adcock, Dr J. S. Ash, B. H. Beck, R. Beecroft*, Mrs D. M. Bradley, Dr J. Bynon, D. R. Calder, I. D. Collins*, Dr H. Crick*, S. J. Farnsworth*, B. Gray, D. Griffin, C. A. R. Helm, P. Hogg, T. J. James, M. C. Jennings, R. Kettle, Dr P. Lack, I. T. Lewis, Revd. G. K. McCulloch, Dr J. F. Monk*, Mrs A. M. Moore*, R. G. Morgan, Mrs M. Muller, P. A. Prince, V. J. Sawle, Dr R. C. Self, R. E. Sharland*, N. J. Skinner*, N. H. F. Stone, Lt-Col. T. C. White, Dr R. Wilkinson*, A. P. Ziegler.

Other Members of WAOS present were: C. S. Balchin, R. Degauquier, HE. M. E. J. Gore, Dr M-Y. Morel, B. Pearson.

Guests present were: Mrs B. H. Adcock, C. Bell, Mrs Bruce-Lockhart, Professor T. Bynon, Mrs J. B. Calder, L. Clarke, Miss J. Edrich, Mrs F. Farnsworth, Mrs Griffin, Miss C. Hoff, Mrs I. McCulloch, P. J. Moore, C. A. Muller, Mrs A. Nason, R. Ranft, Miss D. Ridgley.

After supper Roger Beecroft gave an address on "Birds of the Sahara", an interesting account of a journey made from October to December in 1988 across the Sahara Desert from Algeria to the northern border of Nigeria and back again. He illustrated his description with slides showing the varied terrain of the journey and presented data of migrating and wintering birds which had been collected *en route*.

The relationships and taxonomy of the Fijian parrot genus *Prosopeia**

by Dieter Rinke

Received 28 January 1989

Based on the specimens collected by the Whitney South Seas expedition, Amadon (1942) revised the taxonomy of the Fijian parrot genus *Prosopeia*. Two species were recognized: The Masked Shining Parrot, *P. personata*, which is monotypic (the 'green *Prosopeia*'), and the Red Shining Parrot *P. tabuensis*, which he split into 5 subspecies: *splendens, tabuensis, koroensis, atrogularis* and *taviunensis* (the 'red *Prosopeia*'). While *splendens* is characterized by its crimson colour, the maroon populations of *P. tabuensis* were distinguished by combinations of the following characters: size, occurrence and extension of a blue nuchal collar, and the amount of red feather tips on the rump. Amadon's taxonomy was accepted in subsequent treatments of either parrots (Forshaw 1973) or Fijian birds (Mayr 1945, duPont 1976, Watling 1982, Clunie 1984). Wolters (1975–82) resurrected Mathews' genus *Layardiella* for *tabuensis,* but this was not accepted by most authors.

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*This is publication No. 1 from the Brehm Fund South Seas Expedition.

The arrangement of the taxa within the order Psittaciformes is as yet controversial; apparently, no satisfactory classification exists. Smith (1975) and, to a lesser extent, Homberger (1980) provide an assessment of those characters which were thought to be of significance for a phylogenetic arrangement of the parrots, but most of them do not seem to reveal relationships.

The genus *Prosopeia* exemplifies these taxonomic difficulties. Brereton (1963) presented a somewhat curious taxonomy for the family Psittacidae to encompass the genera *Poicephalus, Psittacus* (both from Africa), *Coracopsis* (from Madagascar), *Psittichras* (from New Guinea) and *Prosopeia.* Most authors suggest there is a close relationship between *Prosopeia* and the king-parrot group (especially to *Alisterus*), both being included either in the platycercine or psittaculine assemblages (review in Homberger 1980). Amadon (1942) considered merging *Prosopeia* with *Alisterus,* but refrained until the taxonomic significance of the carotid formula was proved. Homberger (1980) differs from all other authors in clearly separating *Prosopeia* (as platycercine) from *Alisterus* (as psittaculine). Mayr (1939: 203), interestingly, supposed a Papuan origin of the genus *Prosopeia*, while later, in his treatment of eastern Polynesian birds, he stated: "The case of *Cyanoramphus* is puzzling; the genus may have had a much wider distribution in Polynesia, and *Prosopeia* may be a specialized remnant of this stock" (1939: 209).

The first part of this paper deals with the relationships of *Prosopeia* in the light of primitive and derived plumage characters, and of biogeographical data. In the second part, the genus *Prosopeia* is revised on the basis of traditionally used morphological characters within the genus, taking into consideration past and present distributional patterns.

Methods

I studied a total of 217 *Prosopeia* specimens in the American Museum of Natural History (AMNH) in New York, the British Museum (Natural History) (BMNH) in Tring, the Senckenberg-Museum (SM) in Frankfurt and the Zoologisches Forschungs-Museum Alexander König (ZFMK) in Bonn. Data on some *atrogularis* specimens have been provided by W. Boles from the Australian Museum (AM) in Sydney. In addition, plumage characters and measurements from a few live birds from 'Eua, Tonga, were recorded during my field studies.

Plumage characters were noted for every specimen, and the following *measurements* taken: length of the folded right wing, width of the upper mandible at the base of the bill, and exposed culmen. The exposed culmen data were not, in fact, evaluated because of high variability within populations, probably due to abrasion independent of age; 'exposed culmen' is not a useful character in parrot systematics. Tail length was equally ignored, due to high variability resulting from seasonal wear. Forshaw (1973) showed that tarsus length in *Prosopeia* does not reveal interpopulation differences, so this too was ignored.

TABLE 1

Morphometric data of *Prosopeia* populations (WL = wing-length; WM = width of upper mandible; n = number of specimens; s.l. = significance level for female–male differences)

	FEMALES			**MALES**			
	means ± s.d.	**range**	**n**	**means** ± s.d.	**range**	**n**	**s.l.**
WL (*tabuensis*)	23.25 ± 0.46	22.0–24.1	24	24.42 ± 0.70	23.5–25.6	30	$P<0.001$
WM (*tabuensis*)	16.17 ± 0.61	15.1–17.3	24	18.53 ± 0.39	17.7–19.2	32	$P<0.001$
WL (*koroensis*)	22.35 ± 0.72	21.6–23.6	6	22.91 ± 0.51	22.4–23.9	12	n.s.
WM (*koroensis*)	16.03 ± 0.47	15.3–16.5	6	18.73 ± 0.48	18.0–19.4	12	$P<0.001$
WL (*atrogularis*)	21.96 ± 1.22	20.7–24.2	8	24.02 ± 1.14	22.6–25.7	13	$P<0.001$
WM (*atrogularis*)	16.01 ± 0.33	15.7–16.5	8	18.12 ± 0.47	17.0–18.8	15	$P<0.001$
WL ('*tabuensis*')	22.84 ± 0.89	20.7–24.1	38	23.99 ± 0.98	22.4–25.7	55	$P<0.001$
WM ('*tabuensis*')	16.12 ± 0.53	15.1–17.3	38	18.48 ± 0.47	17.0–19.4	57	$P<0.001$
WL (*taviunensis*)	20.06 ± 0.50	19.1–20.8	16	21.50 ± 0.62	20.4–22.9	12	$P<0.001$
WM (*taviunensis*)	14.45 ± 0.44	13.4–15.2	16	17.76 ± 0.69	16.8–18.7	12	$P<0.001$
WL (*splendens*)	21.51 ± 0.62	20.2–23.0	24	22.94 ± 0.71	21.5–24.2	29	$P<0.001$
WM (*splendens*)	15.46 ± 0.63	14.4–16.7	25	17.94 ± 0.69	16.6–19.4	29	$P<0.001$
WL (*personata*)	22.80 ± 0.45	22.2–23.6	20	23.97 ± 0.69	22.5–24.9	21	$P<0.001$
WM (*personata*)	16.07 ± 0.43	15.2–17.0	20	18.40 ± 0.69	17.2–19.2	22	$P<0.001$

'*tabuensis*' = *tabuensis*, *atrogularis* and *koroensis* evaluated jointly.

Small series of specimens of species supposedly close relatives of *Prosopeia* (i.e. *Eunymphicus*, *Cyanoramphus*, *Platycercus*, *Alisterus*, *Aprosmictus* and *Eclectus*) were similarly studied.

Relationships of the genus *Prosopeia*

External morphology

In parrots, a predominantly red plumage is a derived character which appeared independently: in *Ara*, *Eclectus*, *Alisterus* and *Platycercus* in the Psittacidae; in *Lorius*, *Eos*, *Chalcopsitta*, *Charmosyna*, *Vini* and *Trichoglossus* in the Loriidae. Green plumage is a primitive character, and hence, when assessing relationships on plumage characters, the more primitive green forms need to be compared.

P. personata, the most primitive member of the genus, closely resembles *Eunymphicus* (blackish face, blue primaries, yellowish-green colouration), but has no blue rump patch (a characteristic of all *Alisterus* and *Aprosmictus* specimens), nor a red upper mandible (present in *Aprosmictus* and *Alisterus* except in ♀ *A. scapularis*), and lacks the more emerald green overall colouration of *Aprosmictus*, ♀ *Alisterus* and ♂ *Eclectus*. In 'jizz' and colouration, *P. personata* resembles a larger version (island gigantism?) of *Eunymphicus cornutus uveaensis*. There is no evidence for a close relationship with *Alisterus*.

Sexual dimorphism in bill size is strongly marked in all populations of *Prosopeia* (Table 1) and significantly so in *Eunymphicus*, in *Platycercus elegans* and in most populations of *Cyanoramphus* ($P<0.01$); but in *Alisterus*, in *Aprosmictus* and in *Eclectus* sexual dimorphism in bill size is not significant, if present at all.

Biogeography

King-parrots and related genera (e.g. *Alisterus, Aprosmictus* and *Polytelis*) show a strongly continental distribution pattern in those Australian and Papuan regions which have been repeatedly connected during the Pleistocene. Oceanic barriers between Australia and Timor (where *Aprosmictus jonquillaceus* occurs) and between New Guinea and the Maluku Islands (part of the range of *Alisterus amboinensis*) were either very narrow or not present during the periods of maximum glaciation. (The *Alisterus amboinensis* populations on the Peling Islands may have resulted from early human introductions.) King-parrots, however, have colonized neither the large islands to the north and east of New Guinea (i.e. New Britain, New Ireland, the Solomons) nor New Caledonia, despite the availability of the once large glacial land mass of the Bellona plateau. On the other hand, *Cyanoramphus* parakeets are known from widely scattered islands in the southwestern Pacific: from Lord Howe Island east to Tahiti, from Macquarie I. north to New Caledonia, though many populations are now extinct.

Of the Fijian avifauna, most species have their origin in the Papuan region (Mayr 1939, Watling 1982), having colonized Fiji eastward and southward via the Solomons, the Santa Cruz Islands and Vanuatu, and possibly the islands of the Pandora Bank (lying between the Santa Cruz Islands and Rotuma) during the ice ages. The Fijian derivatives of a Papuan stock are represented on these island groups by closely related forms, including even Fiji's distinctive endemics such as *Lamprolia victoriae, Trichocichla rufa* and the species of the '*Chrysoenas* group' of *Ptilinopus* fruit-doves. There is, however, no long-tailed parrot species on any island between New Guinea and Fiji.

This biogeographical evidence supports the conclusions just cited of the studies of external morphology that *Prosopeia* is more closely related to *Eunymphicus* than to *Alisterus*. It is the only New Zealand element in the resident Fijian avifauna.

The genus *Prosopeia* in Fiji and Tonga

Variation in the maroon populations

Within the genus *Prosopeia*, 3 distinct colour types exist: green in *personata*, crimson in *splendens*, and maroon in the remaining 4 forms (cf. Amadon 1942). Variation in plumage characters is only slight in *personata* and *splendens*.

In the maroon forms, which are at present distributed over one Tongan ('Eua) and 6 Fijian islands (Vanualevu, Kioa, Taveuni, Qamea, Koro and Gau), there is variation in size and in colouration of certain parts of the plumage, especially of the neck and rump. In size, the form from Taveuni and Qamea (*taviunensis*) is separable from the others, both sexes having significantly smaller wing-lengths (Table 1: $P<0.01$). In width of the upper mandible, there are significant differences in females between *taviunensis* and each of Amadon's (1942) other 3 named forms of *tabuensis*, namely *koroensis, atrogularis* and *tabuensis*; in males differences are significant between *taviunensis* and both *tabuensis* and *koroensis* ($P<0.01$; Table 1), but not *atrogularis*.

The subspecies *koroensis* (from Koro), *atrogularis* (from Vanualevu and Kioa) and *tabuensis* (from Gau and 'Eua) were originally distinguished principally on the amount of maroon tips to the rump feathers and on the occurrence and extent of a blue nuchal collar (Layard 1876a, Amadon 1942). All specimens examined from Koro have the rump feathers tipped with red, from a few feathers to about 50%, but not so extensively as noted by Amadon (1942). 10 of 24 specimens from Gau and 6 of 21 specimens from 'Eau have red—mostly very few—tips to the rump feathers. In 9 birds from Vanualevu and 7 from Kioa, the rump was without any red markings, but the samples are only small.

The blue nuchal collar is well developed in the birds from Vanualevu, but in the Kioa specimens it is narrow. Specimens from the other islands show much variation: birds from 'Eau and Gau may show no blue feathers or a fully developed blue collar, most specimens being between these extremes. Of the 18 Koro birds, 4 have some blue feathers in the hindneck, one showing a narrow blue collar.

Excepting *taviunensis*, variation in width of the upper mandible and in wing-length within and between the maroon populations is slight; there are no significant differences between these 2 parameters. In Table 2, significant differences between different pairings of populations are marked. It is noteworthy that females from Koro^4 have significantly longer wings than those from Vanualevu^4, while in males^5, this relation is reversed.

Mean wing-length in males from Kioa^7 (22.78 mm) (which have been included in *atrogularis* by Amadon 1942), cluster with those from Koro^5 (22.91 mm, to give a mean of 22.88 mm, with no increase in standard deviation when both populations are combined), rather than with those from Vanualevu^7 (mean 24.17 mm and an increase in standard deviation—Table 2). Females are excluded due to too few single island data. If the data of all maroon forms except *taviunensis* (here indicated as '*tabuensis*') are evaluated jointly, the variation of bill-size is similar to that in the 2 other *Prosopeia* populations (e.g. *splendens* and *personata*), in both females and males. In wing-length, variation is about 1.5 times higher in '*tabuensis*' than in the other species (Table 1).

Assessment of variable characters

The red feather tips on the rump are probably of little taxonomic significance. Juveniles of some species of parrots (for example *Agapornis roseicollis*; pers. obs.) occasionally show red markings on some feathers, and these are replaced by green feathers during the first moult. A juvenile female Red Shining Parrot, which I kept in an aviary on 'Eua, was marked with red also on the lesser and median wing-coverts. The red feathers disappeared after the first moult.

Out of 9 specimens collected on 'Eua in August (which is during the breeding season, cf. Rinke in press), there was ". . . only a single specimen which has the uropygium uniform green; the others all show more or less red tips to the feathers, which in some are broad and very conspicuous; in two, also, the lesser and largest scapula-coverts have purplish-red tips" (Finsch 1877: 771). Finsch must previously have seen other specimens from 'Eua which probably had no red feather tips on the rump, as he

TABLE 2

Comparison of morphometric data (mm) of *tabuensis* specimens from single islands and from variously combined islands (number of specimens not given in Table 1 in brackets). Significance level ($P < 0.01$) between populations marked by identical superscript numbers.

Islands	**Females**	
	Wing length	**width of upper mandible**
'Eua	23.17±0.29 (13)	16.30±0.62 (13)
Gau	23.53±0.34 (11)	15.99±0.57 (11)
'Eua & Gau (*tabuensis*)	23.32±0.35^{1,3}	16.17±0.61
'Eua, Gau & Koro	23.12±0.59 (30)	16.14±0.58 (30)
Koro (*koroensis*)	22.35±0.72^{1,4}	16.03±0.47
Koro & Kioa	22.14±0.65 (8)	15.97±0.40 (8)
Kioa	21.73±0.06 (2)	15.83±0.16 (2)
Kioa & Vanualevu (*atrogularis*)	21.96±1.22^{3}	16.01±0.33
Koro, Kioa & Vanualevu	22.13±1.02 (14)	16.02±0.38 (14)
Vanualevu	20.97±0.25^{4} (6)	15.93±0.32 (6)
all islands ('*tabuensis*')	22.88±0.88	16.12±0.53

Islands	**Males**	
	Wing length	**width of upper mandible**
'Eua	24.33±0.56 (17)	18.63±0.42 (19)
Gau	24.78±0.69 (13)	18.41±0.30 (13)
'Eua & Gau (*tabuensis*)	24.54±0.65^{2}	18.53±0.39
'Eua, Gau & Koro	24.11±0.94 (42)	18.59±0.42 (44)
Koro (*koroensis*)	^{5}22.91±0.51^{2,6}	18.73±0.48
Koro & Kioa	22.88±0.45 (17)	18.64±0.50 (17)
Kioa	^{7}22.78±0.13 (5)	18.35±0.48 (5)
Kioa & Vanualevu (*atrogularis*)	24.02±1.14^{6}	18.12±0.47
Koro, Kioa & Vanualevu	23.48±1.04 (25)	18.41±0.56 (25)
Vanualevu	^{5,7}24.17±0.74 (8)	18.10±0.20 (8)
all islands ('*tabuensis*')	24.09±0.98	18.48±0.47

concluded: "The absence of red tips to the feathers of the lower rump or upper row of upper tail-coverts, . . ., is not a character of specific value in these birds" (Finsch 1877: 771).

Besides variation within some of the maroon populations, Amadon's (1942) distinguishing characters show some clinal variation. With regard to size, the birds from Vanualevu, Gau and 'Eua are the largest; those from Kioa and Koro show slight tendencies towards the smallest form, *taviunensis*. Regarding the blue nuchal collar, the birds from Koro are closest to the Taveuni parrots, which have no nuchal collar; those from 'Eua and Gau are highly variable and may be classified as being intermediate between specimens from Taveuni and Vanualevu, the latter distinguished by well developed nuchal collars. Amadon (1942) attributed the variation in plumage characters in the specimens from 'Eua to human introductions of parrots from different Fijian islands; but this assumption had been made as early as 1793 by Labillardiere (Layard 1876b: footnote p. 390). Layard argued that "its powers [of flight] are too limited; and not one representative of the genus is found anywhere among the islands" (1876c: 501), and that "it has been their [the Tongans'] custom to take tamed examples of *Platycercus* [*Prosopeia tabuensis*] . . . to Tonga for the purpose of periodically plucking their crimson feathers for ornamenting fans &c." (1876b: 390).

Specimens from Gau are indistinguishable from 'Eua Red Shining Parrots; Amadon (1942) considered that Gau's population had either developed its intermediate characters during a long period of isolation, or had resulted from introduction by man.

Trading with parrots, especially those having red feathers, was very common among island people. Bones of a parrot clearly referred to *Prosopeia* have been found at archaeological sites on Lakeba, Lau archipelago, Fiji (Best 1984), and as mentioned above, the populations on Koro and Kioa were possibly also effected by human interference. The Taveuni form is relatively distinct, though Taveuni and Vanualevu were never separated by more than 18 km; whereas the Koro, Gau and 'Eua birds, closely resembling those from Vanualevu, were separated from Vanualevu by at least 40 km of open sea during the Pleistocene and Holocene (Fig. 1). Character divergence from the source population is more likely to occur in a comparatively small population on a small island (e.g. Gau and Koro) rather than in a much larger population which, in addition, is much closer to the source island (Taveuni).

As a result, Red Shining Parrots from Taveuni and Qamea are sufficiently distinct to be given subspecific status within *tabuensis* (*Prosopeia tabuensis taviunensis*). The remaining *tabuensis* populations, however, should all be included under the nominate *P. tabuensis tabuensis*, because there are no unequivocally defining characters to separate *koroensis, atrogularis* and *taviunensis*. The specific name *tabuensis* which is used hereafter refers to these 3 subspecies.

Species limits in Prosopeia

On Vitilevu, *personata* and *splendens* have existed sympatrically since at least 1840 (the description of *splendens* was based on specimens from Vitilevu—Peale 1948). The latter has always been regarded as having been introduced into Vitilevu (Amadon 1942, Watling 1978, 1982), but this assumption has no traceable origin and is unproven. If *splendens* was indeed introduced into Vitilevu by Fijians, it must have occurred prior to the first visits of Europeans, because *splendens* was frequently seen by early authors (Layard 1875, Gräffe 1968), becoming rare after the turn of the century (Bahr 1912), and, although considered extinct by Clunie (1984), still occurs in low numbers on Vitilevu (Watling, pers. comm.).

Because there are neither intermediate specimens in museum collections nor reports about hybrids from the wild sympatric populations of *personata* and *splendens,* these 2 can be regarded as distinct biological species. Although Amadon (1942) regarded *splendens* as a subspecies of *tabuensis*, considering that the distinction between the maroon of the *tabuensis* populations and the crimson of *splendens* was merely a matter of

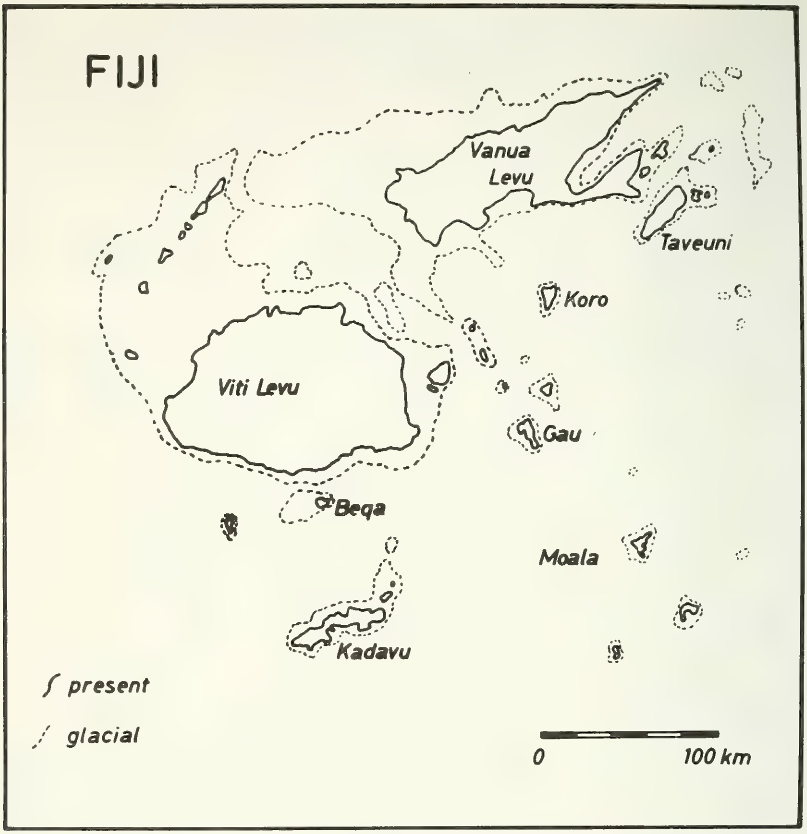

Figure 1. Pleistocene distributions of islands in the Fiji archipelago (after Watling 1982); Ovalau, Kioa and Qamea are the closest islands east of Vitilevu, Vanualevu and Taveuni respectively.

hue, he seemed not entirely satisfied with this opinion when he wrote: "It is possible that *splendens* would not interbreed with the maroon forms, just as it does not with *personata*. Unless this is not demonstrated in nature, *splendens* may continue to be considered a race of *tabuensis*" (1942: 9).

Potential reproductive isolation is the weak point in the biological species concept in its classical sense (but what else than a 'biological' species concept is the phylogenetic species concept?). Biogeographical evidence, as discussed below, strongly supports the opinion that *personata* and *tabuensis* are closely related phylogenetically, and that *splendens* was isolated from the *personata*/*tabuensis* stock at an earlier date. Corroboration is found in some characters of the external morphology, which are considered first.

A captive-bred hybrid ♀ *personata*/♂ *tabuensis* resembled *tabuensis* in almost all plumage characters, only lacking the blue nuchal collar, allowing the green colour of the back to extend onto the hindneck. Red appears to be a dominant colour. The phenotype of the hybrid strongly suggests that the colour of the head and breast plumage is controlled by a few gene loci.

Other characteristics support the opinion that *splendens* deserves specific status:

splendens lacks a dark facial mask. In *tabuensis,* the lores and the facial mask are blackish much like the dark face of *personata*;

tabuensis has green feather edges on the cheeks and the belly, whereas in *splendens* these feather areas are completely crimson;

all populations of *tabuensis* are maroon, whereas *splendens* is distinctively brighter coloured;

no intermediates have occurred on islands where individuals of both *splendens* and *tabuensis* have been introduced.

Strong evidence that *splendens* is specifically distinct also comes from the distributional pattern of birds within the Fijian archipelago, exampled by the relatively isolated island of Kadavu. When compared with the other large islands of central Fiji, Kadavu's endemic and subspecific forms are illustrative:

Kadavu has endemic species of a honey-eater, *Foulehaio provocator,* a fantail, *Rhipidura personata* and a fruit-dove, *Ptilinopus layardi,* which are represented by only slightly different populations, *Foulehaio carunculata* and *Rhipidura spilodera,* on the other large islands of Fiji, and by *P. luteovirens* on Vitilevu, Ovalau, Koro, Gau and some smaller islands.

Some widespread species have well-marked subspecies on Kadavu (e.g. *Halcyon chloris, Myiagra vanicorensis* and *Petroica multicolor*), while populations of these species on the other large islands have not differentiated to a subspecies level.

Three forest-dwelling species (*Charmosyna amabilis, Gymnomyza viridis* and *Myiagra azureocapilla*) inhabit the 3 largest Fiji islands but do not occur on Kadavu, the fourth largest island in Fiji. There are no Fijian taxa which have representatives on most large islands, where those from Kadavu are closer to conspecifics or congeners from Vanualevu, Taveuni, Koro or Gau than to related forms from Vitilevu. Geneflow between populations on those islands, on which *P. tabuensis* occurs, and populations on Kadavu seems to be almost non-existant. Kadavu's isolation appears even more pronounced when considering glacial distributions of land in the Fiji archipelago. While Vitilevu and Vanualevu, as well as Vanualevu and Taveuni, were separated by channels of only a few kilometers during periods of glacial maxima, there were at least 40 km of open sea between Kadavu and Vitilevu during any period of the Pleistocene (Fig. 1).

If the geographical position of Kadavu within Fiji has resulted in distinctive forms thereon, even in those taxa which may be called 'supertramps' (*sensu* Diamond 1974), e.g. *Halcyon chloris* and *Foulehaio,* or in species with good dispersal abilities such as *Myiagra vanikorensis,* how much more pronounced should be distinctiveness in weakly dispersing

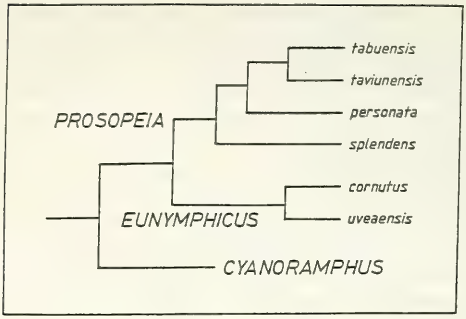

Figure 2. Phylogenetic relationships of south Pacific islands platycercine parrots.

taxa such as *Prosopeia*, resulting in almost complete isolation and the possible subsequent acquisition of specifically distinguishing characters.

On the other hand, there may have been geneflow between *Prosopeia* populations on Vitilevu and those on Vanualevu until the end of the latest glaciation, when a large lagoon between these 2 islands was connected with the open sea merely by 3 narrow channels (Fig. 1). Such sea barriers were possibly even shorter than indicated by iso-barythmetic lines as a result of extensive stands of mangroves growing up, and these do form suitable habitats for non-breeding *Prosopeia* parrots (Bahr 1912, Clunie 1984).

Taxonomic conclusions

1. Reproductive isolation has developed in *personata* and *splendens*, which are therefore good biological species.

2. Similarities between *splendens* and *tabuensis* are superficial. Red colour in parrots is a factor which may spread easily in a parrot population once acquired, assuming it incurs no disadvantages related to predators.

3. Based on distributional analysis and some morphological characters, *tabuensis* (including *taviunensis*) is considered to be closer phylogenetically to *personata* than to *splendens*. The distinctive plumage characters may have been acquired after the last glaciation.

4. There will probably be no proof of reproductive isolation between *personata* and *tabuensis* in the wild. The importance of facial colouration and colour pattern in mate recognition in parrots, however, makes reproductive isolation (through ethological barriers) between these 2 forms highly probable.

Hence, the following taxonomic arrangement of the genus is proposed (see Fig. 2), with the distribution of the forms:

- *Prosopeia splendens*, monotypic; Kadavu and Vitilevu
- *Prosopeia personata*, monotypic; Vitilevu and, formerly, Ovalau
- *Prosopeia tabuensis* with 2 subspecies:
  - *Prosopeia tabuensis tabuensis*; Vanualevu, Kioa, Koro, Gau and 'Eua
  - *Prosopeia tabuensis taviunensis*; Taveuni and Qamea.

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Comments on *Passer italiae* (Vieillot 1817)

by Bruno Massa

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Mayr (1963) and Johnston (1969) considered *Passer italiae* a stabilised hybrid between *P. domesticus* and *P. hispaniolensis*. Apart from Italy, forms phenotypically belonging to *P. italiae* live in Corsica, some oases of Algeria, Tunisia and Lybia, and in the isle of Crete. A clinal variation has been observed in the Italian peninsula, where first Bertani (1944) and subsequently Johnston (1969) and Lo Valvo & Lo Verde (1987) have observed a southward decrease in the wing length. Furthermore the same 3 authors pointed out that *hispaniolensis* characters increase southward along the Italian peninsula, Sicily and Maltese Islands.

While Johnston (1969), nevertheless, proposes that *P. italiae* be recognised as a full species, Summers-Smith (1978) considers *P. italiae* is a subspecies of *P. hispaniolensis* on the basis of phenotypical and behavioural characters. Baumgart (1984), agreeing that *P. italiae* and *hispaniolensis* are conspecific, points out that *hispaniolensis* (Temminck 1820) is a junior synonym of *italiae* (Vieillot 1817), and proposes the new arrangement *P. italiae italiae* and *P. italiae hispaniolensis*, a proposition which has been overlooked in the recent book by Summers-Smith (1988), who there still considers *italiae* to be a subspecies of *hispaniolensis*.

Lo Valvo & Lo Verde (1987) agree with Johnston (1969) that *P. italiae* is a full species, but they prefer to regard the Sicilian and Maltese populations as *P. hispaniolensis*. Electrophoretic analysis by Brown *et al.* (1970), indeed, confirmed that Sicilian and Maltese populations are taxonomically very close to each other.

Some authors (e.g. Baumgart 1984, Summers-Smith 1988), who regard *P. italiae* as a subspecies, also regard it as closer to *hispaniolensis* than to *domesticus*; they advance the hypothesis that hybridization between *P. domesticus* and (migrant) *P. hispaniolensis* accounts for the *italiae*-like sparrows in Crete, Yugoslavia and in the oases of North Africa, where a complete range of intermediates between *domesticus* and *hispaniolensis* has been noticed (Summers-Smith & Vernon 1972, Metzmacher 1986a,b); but, as Metzmacher (1986a) observes, it is unlikely that the same phenomenon can be explained in 2 different ways: an *italiae*-like sparrow cannot be a subspecies in the Italian peninsula and a hybrid in other areas.

Summers-Smith (1988) points out that the kind of intergradation southward in the Italian peninsula is typical of a subspecies, whereas he cites a sharp transition at the northern boundary to demonstrate that *italiae* and *domesticus* are different species. The existence of this intergradation was noted earlier by Bocchi *et al.* (1960); they concluded from their blood groups that Sicilian sparrows are hybrids between *hispaniolensis* and *italiae*, some Sicilian individuals sharing the same antigen pool with north Italian sparrows. Moreover it seems that in the northern part of *italiae's* breeding area a true isolation between *italiae* and *domesticus* in fact does not exist. Schifferli & Schifferli (1980) indeed report a hybrid area, 30–35 km wide, of freely interbreeding *domesticus* and *italiae*; a possibly even wider hybrid zone is given for *italiae's* western boundary in France (Lo Valvo & Lo Verde 1987, Summers-Smith 1988) and also for its eastern boundary in Austria and Yugoslavia (Summers-Smith 1988). In addition, occasional *italiae*-like hybrids are reported from zones where *domesticus* and *hispaniolensis* overlap (Summers-Smith 1988), while Alonso (1984), hybridizing *domesticus* × *hispaniolensis*, obtained a *fluckigeri*-like sparrow, one of the *italiae*-like intermediates.

Lastly, Thibault (1983) reports hybrid populations of *hispaniolensis* × *italiae* in the south of Corsica, certainly resulting from the immigration of *hispaniolensis* from Sardinia.

Some authors (Stephan 1984, Metzmacher 1986b) have pointed out that there is individual variation of several plumage traits and Lo Valvo & Lo Verde (1987) that the plumage varies between different seasons. Phenotypical analysis should therefore be carried out following identical criteria for each individual for all the *italiae*-like populations, for those living in Italy as well as in Corsica, Crete or N Africa. Such a study in the past in many cases may have been not entirely objective and the conclusions dependent on the methodological approach. The conclusion of Summers-Smith (1978, 1988), for example, that Maltese Sparrows show both *hispaniolensis* and *domesticus* characters could depend on the fact that he visited Malta only in October, at a time when *hispaniolensis* plumage has the widest variation, especially as regards the black streaks on the flanks and the head colour. It is possible, as well, that the 4 samples examined by Metzmacher (1986a) from some oases of Algeria could have given more precise results on the degree of hybridization if the analysis period had been restricted to specimens obtained in the spring-summer months only.

Finally, even if it is true that hybridization between *domesticus* and *hispaniolensis* could have originated from immigrations of *hispaniolensis* (and *hispaniolensis* is certainly more of a wanderer than *domesticus*, having been recorded as far away as Great Britain—Charlwood & Britton 1981, Waller 1981), the suggestion that, on the other hand, *domesticus* may have invaded zones where *italiae* breeds, and *vice versa*, cannot be dismissed. Thibault (1983), for example, reports for Corsica some records of typical *domesticus* and also of hybrid *domesticus* × *italiae*, while Le Grand (1977) records the colonisation of Sâo Miguel (Azores) by *domesticus*, certainly originating from the isle of Terceira, c. 130 km away. Evidently *domesticus* may at times disperse as distinctly as *hispaniolensis*.

Summers-Smith (1988: table 50) also suggests that *italiae* could be regarded as a semispecies; but this term was, in fact, used by Mayr (1963) to define the allopatric species of which a superspecies is composed. So, even if we could consider *domesticus* and *hispaniolensis* as semispecies of the Linnean superspecies *domesticus*, this term does not fit specimens from the hybrid strip or intergradation zone (*italiae*). More coherently Lo Valvo & Lo Verde (1987) propose regarding *italiae* as an "*emergent interspecies*" (*sensu* Vuilleumier 1976), i.e. a species very close to others whose breeding areas it overlaps and where hybridization may be shown.

Therefore, as previously pointed out, the taxonomic problem of *italiae*-like sparrows, described as "somewhat of a taxonomist's nightmare" (Waller 1981), cannot be solved merely by phenotypical analysis, and no proposal resulting from traditional taxonomic approach can now be genuinely accepted.

In conclusion, while waiting for genetic studies in depth on hybrid *italiae*-like populations in comparison with 'accepted' sparrow species, researchers must avoid causing new complications in sparrow nomenclature. I propose that the *italiae*-like Sparrows be recognised as stabilized hybrids between *domesticus* and *hispaniolensis*, and that the useful specific rank, *P. italiae*, as proposed by Johnston (1969) be maintained.

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Notes on the House Crow *Corvus splendens* in Mauritius

by C. J. Feare & Y. Mungroo

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House Crows *Corvus splendens* have become naturalised in many countries bordering the Indian Ocean, following both deliberate introductions and ship-assisted passage from ports in the native range, especially India and Sri Lanka (Long 1981, Lever 1987). In some parts of their new range, House Crows cause a variety of problems, including nuisance and possible health hazards for man and his domestic stock, as well as having led to declines in populations of native birds (Ash 1984, Dolbeer 1987, Ryall & Reid 1987). While some aspects of the birds' biology are known in India (Ali & Ripley 1972), very little is known about introduced populations.

The Mauritius population has increased from c. 100 birds in 1976 (Staub 1976) to 600–1000 birds in 1988 (Feare & Mungroo in press), mainly concentrated in the capital, Port Louis, but with an outlying colony in Pamplemousses Botanic Garden and isolated nests elsewhere. Sightings of flocks as far inland as Curepipe (25 km from Port Louis) suggest a continuing expansion of range.

The present observations were made during a visit 2–16 October 1988.

BREEDING

Courtship feeding and mutual allopreening were seen during this study (early October) and birds were building nests. The testes of males collected in experiments on control (Feare & Mungroo in press) were enlarged and although the ovaries of females were still small, oogenesis was proceeding, suggesting that egg-laying would occur within a few weeks. Only 2 nests found were isolated, the remainder were in colonies; at the quarantine Station, Roches Bois, 24 were found in one large Banyan tree. Lamba (1963) recorded finding up to 9 nests in one tree, but Goodwin (1976) claimed that they usually nested singly and Ali & Ripley (1972) did not mention social breeding. In Mauritius, House Crows are predominantly colonial. Nests in almost all colonies were built mainly of twigs, but nests in the Roche Bois area were constructed almost entirely of wire. Nests were generally at least 10 m above the ground in tall trees, mainly in Banyan *Ficus benghalensis* or in another (unidentified) *Ficus*. A few nests were found in other trees: *Terminalia mantali, Tebebuia pentaphylla, Callistemum* sp. and *Mangifera indica*.

No adults were seen feeding young and no juveniles were seen. The samples that were collected contained some first year birds, identified by their browner, less glossy remiges and rectrices, together with very worn primaries, several with the tips broken off, a feature of ageing first year birds (Ali & Ripley 1972). Their behaviour and gonad condition suggest that House Crows in Mauritius have a discrete breeding season in October–November, but further study is needed to confirm breeding season limits and factors which affect breeding success.

TABLE 1

The weight (g) and wing (flattened chord) and culmen measurements (mm) of House Crows *Corvus splendens* captured in October 1988 in Mauritius, and of a series of birds (number and location unknown) from India given by Ali & Ripley (1972).

		MALE			FEMALE	
	WEIGHT	WING	CULMEN	WEIGHT	WING	CULMEN
MAURITIUS						
Mean ± s.e.	316.6 ± 5.3	268.2 ± 1.9	50.9 ± 0.7	269.7 ± 4.4	246.6 ± 2.7	45.8 ± 0.6
n	16	18	18	10	10	9
Range	270–371	255–286	45–56	245–295	237–267	42–49
INDIA						
Range	310–362	266–284	51–56	252–304	252–282	45–50

FOOD

House Crows from all the major colonies around Port Louis fed at the Roche Bois rubbish dump, indicating the importance of garbage as a food source. Away from Roche Bois, garbage in flood drainage channels also was eaten. In town parks and gardens, crows readily took bread, rice and noodles that had been dropped or which had been deliberately thrown down as food for smaller birds. In Port Louis, roadside stalls at which bread and cakes were made, usually had crows in attendance on nearby branches or walls. Evidently, Mauritius House Crows feed mainly on by-products of human activity, since few other food items were seen to be taken. Ripe Banyan figs were being eaten where these trees occurred in or near colonies. Crows also spent considerable effort in removing small fragments of the oily fruit coat of the palms *Livingstonia chinensis* and *Veitchia merrilli*, taken from fruits on the trees or from the ground beneath. In Pamplemousses Botanic Garden, a small dead chick of a Red-whiskered Bulbul *Pycnonotus jocosus* was found with the clear mark of the hooked beak of a House Crow in its soft skull.

BIOMETRICS

Specimens collected were weighed on a Pesola balance, the wing (flattened chord) and culmen measured, and sexed by dissection. The Mauritius data (Table 1) agree well with those from India (Ali & Ripley 1972), except that in Mauritius there is a clearer separation of the sexes by wing length; males were considerably larger than females, a size difference that was readily apparent in flocks.

DISCUSSION

Ali & Ripley (1972) reported a wide variety of food items that were taken by House Crows; the limited range of foods recorded in Mauritius is clearly far from complete. Mauritius crows are heavily dependent on garbage but a study of their food throughout the year would be valuable. Feare & Mungroo (in press) recommend that crow numbers should be controlled and for effective control, suitable baits, more attractive than food already available, are needed. Tinned tuna fish was found to be a highly attractive bait, but alternatives would be required if bait aversion began to reduce the effectiveness of control.

We would appeal for maximum use to be made of dead House Crows. Much can be inferred about breeding status and population structure from large samples of birds, and their pathological examination at the Mauritius Animal Health Laboratory could help to identify possible public and animal health risks, helping to refine and improve control tactics in the future in Mauritius and elsewhere.

Acknowledgements

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Notes on some Hawaiian birds from Cook's third voyage

by Storrs L. Olson

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Scientific knowledge of the birds of the Hawaiian Islands began with the discovery of the archipelago in 1778 on the third and last voyage of Captain James Cook. Contemporary accounts of the Hawaiian avifauna and the history of the specimens brought back from the islands on that voyage have been compiled in an exhaustive monograph by Medway (1981). These accounts and the specimens are of interest not only historically but also from the standpoint of systematics and nomenclature, because most of them are the basis for the descriptions of new species. Further research into the history of Hawaiian ornithology has enabled me to amplify or modify a few points discussed by Medway.

The probable identity of Latham's "Sandwich Thrush", *Turdus sandwichensis* Gmelin, 1789

Most of the Hawaiian birds from Cook's third voyage were first described by Latham (1781–1785), who did not at that time, however, use Latin names for them, these being supplied subsequently by Gmelin (1788–1793). Among these was one species whose identity has remained uncertain to this day, the specimen upon which it was based having apparently been lost at an early date (Medway 1981: 167). This was Latham's "Sandwich Thrush", later Latinized as *Turdus sandwichensis* by Gmelin (1789:813). Latham's (1783:39) description is the sole remaining evidence of the identity of this species:

> "Length five inches and a half. Bill dusky: the upper parts of the plumage pale brown: forehead and under parts cinereous white: belly and lower part of the thighs pale brown: tail even at the end: legs dusky.
>
> Inhabits *Sandwich Islands*. In the collection of Sir *Joseph Banks*."

Medway (1981:167) has reviewed the opinions of various authors who speculated inconclusively on the identity of this bird. The small size and white forehead were cited as precluding the Hawaiian thrushes of the genus *Phaeornis* (= *Myadestes*). The only other suggestion to be advanced was the Kauai creeper, *Oreomystis bairdi* (Stejneger). This species would be improbable considering the limited opportunities Cook's expedition had for obtaining birds from Kauai, except from native traders, who would not likely have dealt in such a drab commodity. There is no evidence that any specimens of birds other than *Vestiaria coccinea* were ever obtained from Kauai by Cook's voyage.

Instead, it seems to me that Latham's description very likely applies to the immature plumage of the Elepaio *Chasiempis sandwichensis* (Gmelin, 1789), from the island of Hawaii. The length, "five inches and a half", is exactly the same as that which Latham (1783:344) gave for his "Sandwich Flycatcher", the description of which formed the basis for Gmelin's (1789:945) *Muscicapa sandwichensis*. In the plumage usually regarded as juvenile in *Chasiempis s. sandwichensis* (plumages of Pacific flycatchers are complex and their proper terminology requires further study), the upperparts are indeed light brown, and the underparts and usually the forehead are dingy whitish. Although the belly proper is the same colour as the rest of the underparts, the flanks are brown. Thus, there is nothing in Latham's description that really conflicts with the juvenile plumage of *Chasiempis s. sandwichensis*. The Elepaio was doubtless an abundant bird on the Kona coast during Cook's visit and it is not at all unlikely that specimens in various plumages would have been obtained. Such variation was responsible for Latham's (1783:345) description of the "Spotted-winged Flycatcher", the *Muscicapa maculata* of Gmelin (1789:945), which has long been regarded as a synonym of *Chasiempis sandwichensis*.

The correspondence between the description of Latham's "Sandwich Thrush" and the immature plumage of the Elepaio is so close that I think it is safe to assume they are the same. Therefore, because the names involved were proposed simultaneously, as first reviser I consider *Turdus sandwichensis* Gmelin (1789:813) to be a subjective synonym of *Muscicapa* *sandwichensis* Gmelin (1789:945). This maintains the existing type and citation for the species, which in this case is preferable to page precedence (*International Code of Zoological Nomenclature*, 1985: Article 24b, Recommendation 24A), even though the nomenclature would not change, because the 2 epithets are homonyms.

The type-locality of the Iiwi *Vestiaria coccinea* (Forster, 1781)

The Iiwi, a species known historically from all the larger Hawaiian Islands, was the first bird to be formally described from the archipelago, being called *Certhia coccinea* by Forster (1781). It was also almost certainly the first species of Hawaiian bird to come into the hands of Cook's naturalists, as specimens clearly of this species were bought from natives when the voyage made its first stop in the islands at Waimea, Kauai, in January 1778 (Medway 1981:106). Otherwise, virtually all natural history collecting by Cook's expedition in the Hawaiian Islands took place on the Kona coast of the island of Hawaii.

After reviewing the evidence, Medway (1981:112) concluded that: "with the exception of *Vestiaria coccinea*, first obtained from the Waimea district of Kauai, the Kona district of Hawaii can be accepted as the type locality for those Hawaiian bird species which were first validly described from specimens collected on the third Cook voyage." Stresemann (1950: 790), too, suggested that the specimens of *V. coccinea* examined by Forster may have been purchased on Kauai. Greenway (1968:95) cited Stresemann in listing the type-locality as "probably Kauai". Previously, Bangs (1911:30), on the other hand, had suggested that: "The island whence the type of *V. coccinea*, brought back by Captain Cook, really came can probably never be known; it seems safe, however, to assume that it was Hawaii, as Captain Cook stopped longer there than at any of the other islands." These authors all overlooked an important point, however, namely that Forster (1781), in the original description, specifically and repeatedly stated that the species came from the island of "O-Waihi" (= Hawaii). This is evident even in the title of his paper: "Beschreibung des Rothen Baumläufers von der Insel O-Waihi," and is reiterated in the first sentence: "In my hands at this very moment I have a sample of a red treecreeper (*Certhia coccinea*), which is said to be rather numerous on the newly discovered island of O-Waihi". This is followed in due course by the statement that: "The habitat of this little creature is the island of Waihi. . ." (translations from Medway 1981:135, 136).

It is immaterial where the *first* specimens were obtained insofar as the designation of a type-locality is concerned. The only possible justification for altering Forster's clear designation of Hawaii would be if it could be conclusively proved that all 4 of the specimens available to Forster certainly came from Kauai, or that the expedition obtained *no* specimens of *Vestiaria coccinea* on Hawaii. The former can hardly be demonstrated because apparently none of Forster's specimens still exist (Medway 1981), and none were ever likely to have had specific locality data associated with them. That no specimens of *Vestiaria coccinea* were obtained on Hawaii is extremely unlikely considering that much more collecting was conducted on that island than on Kauai and that "more specimens of *Vestiaria* *coccinea* were taken back to England than of any other third-voyage Hawaiian bird species" (Medway 1981:137).

Forster obtained the 4 specimens he used in his original description from a German, Barthold Lohmann, who had been on the voyage, and all of his information concerning Cook's third voyage came from interviews with Lohmann and another German sailor, Heinrich Zimmerman (Medway 1981:134). In a letter to Joseph Banks dated 10 January 1781, Forster again clearly states that he was given "some skins of a red Creeper from O-why-hee" (Scheibe 1978:318). At the time, the Hawaiian archipelago was referred to as the Sandwich Islands, and Kauai usually went by the name Atooi, so there would have been no reason for Forster to give the provenance of his specimens as O-Waihi or O-why-hee had he not intended to refer to the island of Hawaii.

For the above reasons, the type-locality of *Certhia coccinea* should be considered to be the Kona district of Hawaii, the same as all other species described from the Hawaiian Islands on the basis of third-voyage specimens.

The 'lost' co-type of *Drepanis pacifica*

Medway (1981:142) reviewed the evidence showing that the 2 specimens of Mamo *Drepanis pacifica*, formerly in the Naturhistorisches Museum in Vienna, were co-types of *Certhia pacifica* Gmelin, 1788, and originated in Cook's voyage. Sassi (1940:408) reported that only one of these remained in Vienna at the time of his writing, the other, an imperfect specimen lacking the upper bill, having been sold to the American Museum of Natural History (AMNH). I examined the catalogue at Vienna and found that this specimen was sold in 1923 for $103. Medway (1981:142) stated that "a recent (1977) enquiry of that museum [AMNH] does not disclose that it ever possessed this specimen. I do not know what became of it."

This specimen has, in fact, long been in the collections of the Museum of Comparative Zoology, Harvard University (MCZ 236875). Bangs (1930:363) wrote of it as follows: "Our specimen is one of the two cotypes that were for years in the Vienna Museum. It was secured from that institution by Doctor Leonard C. Sanford, and came to us in exchange from him for one of our pair of *Ciridops*—the unique female." I examined the specimen at Harvard in 1985. It still bears the characteristic oval parchment label of the early Vienna collections and on the reverse has AMNH catalogue number 23044.

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Distributional notes on the birds of Burkina Faso

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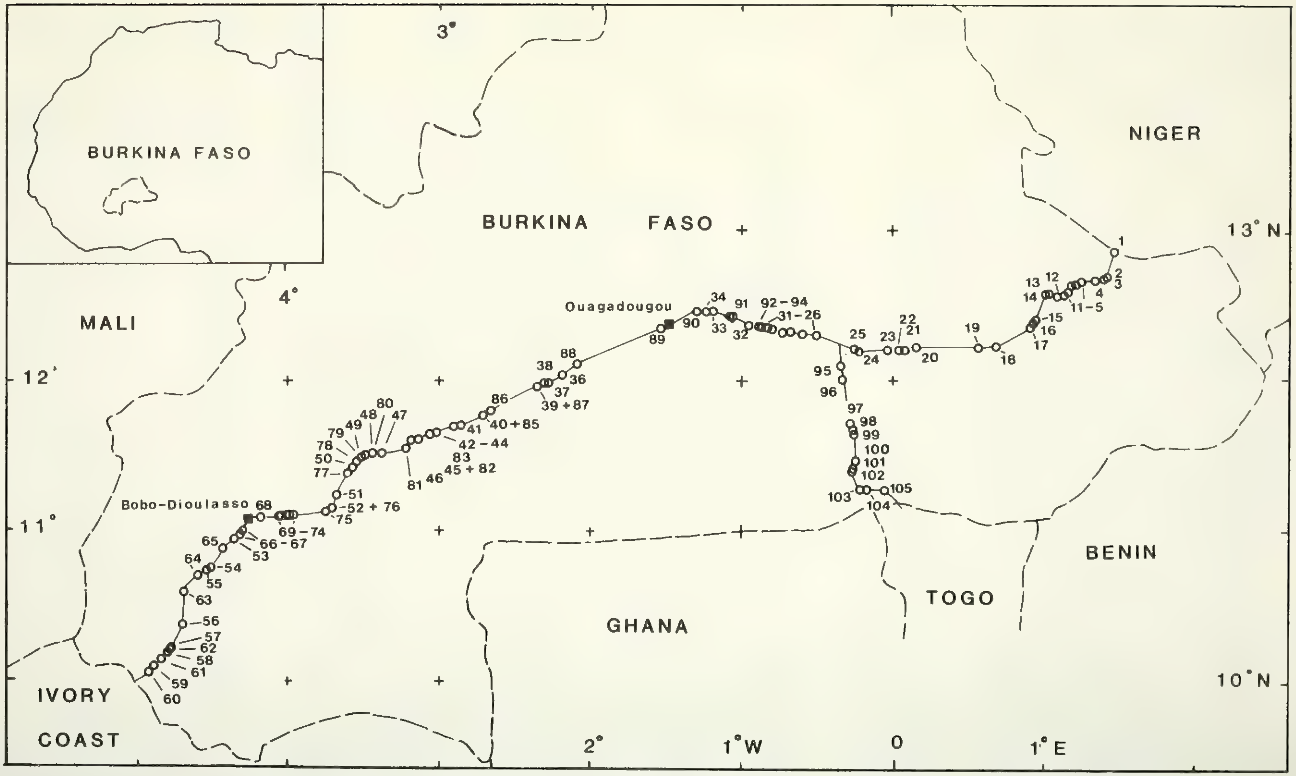
The birds of Burkina Faso (formerly Upper Volta) have remained poorly known in comparison with those of most other countries of west Africa. This paucity of records is immediately apparent from the atlases of speciation in African birds (Hall & Moreau 1970, Snow 1978). A few recent papers have included further records from the country (e.g. Green & Sayer 1979, Payne 1982, Thonnerieux 1984, 1985, 1988, Thonnerieux in press); but there has been no comprehensive survey, so that it is difficult to obtain even an up to date species list from the literature.

The country is mainly in the savanna woodland zone, the far north having rather dry scrub dominated by *Acacia,* whereas moister woodland prevails in the south, especially the far southwest. There are no striking topographical features in Burkina Faso and the vegetation zones that are represented all extend far beyond the country; it is thus not surprising that the avifauna completely lacks endemics and indeed has few localised rarities. There is, however, quite a large avifauna in total, including many Palaearctic migrants.

We visited Burkina Faso both during the rainy season (September 1988) and during the dry season (November 1988). Our observations are reported in detail here because of the scarcity of distributional data from the country. A considerable number of the species we recorded do not appear to have been reported previously. We hope that presentation of our notes will encourage others to record observations there so that a more comprehensive understanding of the avifauna can be achieved.


NIGER
BURKINA FASO
MALI
GHANA
TOGO
BENIN
IVORY COAST
Ouagadougou
Bobo-Dioulasso
13° N
12°
11°
10° N
3°
4°
2°
1° W
0
1° E
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39 + 87
40 + 85
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105

Observation localities in Burkina Faso, September and November 1988. See Table 1.

TABLE 1

List of co-ordinates of numbered observation localities in Burkina Faso, September and November 1988

1	12°48′N,1°30′E	2	12°37′N,1°26′E	3	12°37′N,1°25′E
4	12°37′N,1°21′E	5	12°36′N,1°16′E	6	12°34′N,1°14′E
7	12°34′N,1°13′E	8	12°33′N,1°12′E	9	12°32′N,1°12′E
10	12°31′N,1°10′E	11	12°31′N,1°08′E	12	12°31′N,1°07′E
13	12°32′N,1°05′E	14	12°32′N,1°04′E	15	12°22′N,0°58′E
16	12°19′N,0°57′E	17	12°17′N,0°55′E	18	12°11′N,0°41′E
19	12°11′N,0°36′E	20	12°12′N,0°09′E	21	12°11′N,0°06′E
22	12°11′N,0°05′E	23	12°11′N,0°01′W	24	12°11′N,0°10′W
25	12°12′N,0°12′W	26	12°17′N,0°29′W	27	12°18′N,0°37′W
28	12°19′N,0°39′W	29	12°19′N,0°42′W	30	12°20′N,0°46′W
31	12°20′N,0°48′W	32	12°22′N,0°54′W	33	12°25′N,1°05′W
34	12°27′N,1°09′W	35	12°28′N,1°12′W	36	12°06′N,2°11′W
37	12°02′N,2°16′W	38	12°02′N,2°17′W	39	12°00′N,2°19′W
40	11°48′N,2°42′W	41	11°45′N,2°51′W	42	11°43′N,3°00′W
43	11°43′N,3°01′W	44	11°42′N,3°04′W	45	11°39′N,3°06′W
46	11°38′N,3°09′W	47	11°34′N,3°22′W	48	11°35′N,3°29′W
49	11°35′N,3°30′W	50	11°29′N,3°34′W	51	11°17′N,3°39′W
52	11°13′N,3°42′W	53	11°01′N,4°22′W	54	10°51′N,4°32′W
55	10°48′N,4°37′W	56	10°27′N,4°43′W	57	10°18′N,4°47′W
58	10°17′N,4°48′W	59	10°09′N,4°55′W	60	10°08′N,4°58′W
61	10°15′N,4°51′W	62	10°17′N,4°47′W	63	10°42′N,4°42′W
64	10°49′N,4°32′W	65	10°58′N,4°25′W	66	11°04′N,4°20′W
67	11°06′N,4°19′W	68	11°10′N,4°09′W	69	11°10′N,4°05′W
70	11°10′N,4°03′W	71	11°10′N,4°02′W	72	11°11′N,4°01′W
73	11°11′N,3°59′W	74	11°11′N,3°58′W	75	11°12′N,3°45′W
76	11°13′N,3°42′W	77	11°27′N,3°34′W	78	11°31′N,3°31′W
79	11°34′N,3°30′W	80	11°35′N,3°25′W	81	11°37′N,3°12′W
82	11°39′N,3°06′W	83	11°42′N,3°03′W	84	11°45′N,2°54′W
85	11°48′N,2°42′W	86	11°50′N,2°38′W	87	12°00′N,2°19′W
88	12°08′N,2°04′W	89	12°22′N,1°32′W	90	12°28′N,1°16′W
91	12°25′N,1°03′W	92	12°22′N,0°52′W	93	12°22′N,0°51′W
94	12°21′N,0°48′W	95	12°06′N,0°20′W	96	12°01′N,0°19′W
97	11°43′N,0°16′W	98	11°40′N,0°15′W	99	11°39′N,0°15′W
100	11°27′N,0°14′W	101	11°25′N,0°16′W	102	11°24′N,0°16′W
103	11°16′N,0°13′W	104	11°16′N,0°09′W	105	11°16′N,0°03′W

Ornithological observations were recorded from 105 localities as listed and numbered by coordinates (Table 1). See also Fig. 1.

We entered Burkina Faso from Niger on 3 Sep and stopped at numerous localities from near the frontier NNE of Kantchari (locality 1) westwards along the main road. The capital, Ouagadougou was passed on 6 Sep (locality 35 was c. 39 km E of the city), from where we continued generally westwards along the main N1 road and passed Bobo-Dioulasso on 9 Sep. From Bobo we travelled SW along the N7 road (locality 53 was 17 km SW of the town) to the frontier with the Ivory Coast which was entered on 10 Sep (locality 60 was c. 4 km N of the frontier).

On 18 Nov we re-entered Burkina Faso from the Ivory Coast, returning along our previous route along the N7 towards Bobo (locality 61 was 4 km NE of Niangoloko). Ouagadougou was passed on 21 Nov (locality 89 was c. 8 km W of the city centre), from where we continued eastwards along the main road to Koupela before turning southwards on the N14 (locality 95 was 18 km S of that town). We left Burkina Faso across the frontier into Togo on 22 Nov (locality 105 was 23 km SE of Bitou).

SYSTEMATIC LIST

In the following systematic list the sequence and nomenclature are based on *The Birds of Africa* (vols. 1–3) for the non-passerines and Hall & Moreau (1970) for the passerines. With most species only the locality numbers are listed. For a few species the numbers of individual birds recorded are added in square brackets; H denotes records based only on calls heard; + denotes records based only on a corpse found on the road; * denotes confirmed breeding records.

Notes are given for species that may not have previously been recorded in Burkina Faso, although in the absence of any comprehensive list of the birds of the country it is often difficult to trace previous records. Reliance has therefore often been mainly on the speciation atlases by Hall & Moreau (1970) (H & M) and Snow (all references 1978) in addition to the references we list in our bibliography. Green & Sayer (1979) (G & S) give an important list of birds from Pendjari and Arli National Parks (in N. Benin and SE Burkina Faso respectively), but without attributing individual records to either of these countries. A paper by Thonnerieux *et al*. (in press) will report observations from in and around Ouagadougou. Other information has been kindly provided by Dr J. Frank Walsh (J.F.W.).

Species	**Observation localities**
Phalacrocorax africanus Long-tailed Cormorant	5[2], 57[1]
Anhinga melanogaster Darter	63[1]
Ixobrychus minutus Little Bittern	39[4]
Listed by G & S (p.22); its occurrence in Burkina Faso is shown on the generalised map in Brown *et al*. (1982: 135), but not in Snow.	
Ardeola ralloides Squacco Heron	89[1],95[2]
Bubulcus ibis Cattle Egret	66,73,76,79,83,85,87,92,95,96,98
Butorides striatus Green Heron	15,39,40,51,57
Egretta garzetta Little Egret	87,89,95,96
Ardea purpurea Purple Heron	50[1]
Ardea cinerea Grey Heron	57,69,85,87,96
Ardea melanocephala Black-headed Heron	4,11,12,96
Scopus umbretta Hamerkop	15,27,30,39,42,47,48,50,51,57,61,79,85,95,96
Bostrychia hagedash Hadada	12[2]
Listed by G & S (p.23) and shown as occurring in Burkina Faso on the generalised map in Brown *et al*. (1982: 195), but not in Snow.	
Dendrocygna viduata White-faced Whistling-Duck	6[2],13[3],15[3],57[2],95[5]
Sarkidiornis melanotos Knob-billed Duck	6[4],7[1],11[5],15[2]
Nettapus auritus African Pygmy Goose	76[1]
Pernis apivorus Honey Buzzard	45[1],46[1]
Elanus caeruleus Black-shouldered Kite	45

Continued

Species	**Observation localities**
Milvus migrans Black Kite	39,66,69,70,83,84,85,87,95,96
Necrosyrtes monachus Hooded Vulture	3,27,39,57,62,87,91,93,95
Circaetus gallicus European Snake Eagle Listed by G & S and shown as occurring in Burkina Faso on the generalised map in Brown *et al.* (1982), but not in Snow.	66[2]
Terathopius ecaudatus Bateleur	10,12,13
Polyboroides typus African Harrier Hawk Listed by G & S and shown as occurring in extreme SW Burkina Faso on the generalised map in Brown *et al.* (1982: 352), but not in Snow.	85
Circus aeruginosus Marsh Harrier	87,92,96
Micronisus gabar Gabar Goshawk	6,44,85,98,99
Melierax metabates Dark Chanting Goshawk Listed by G & S and shown as occurring in Burkina Faso on the generalised map in Brown *et al.* (1982: 368), but not in Snow.	11,31,45,81,98
Accipiter badius Shikra Listed by G & S and shown as occurring in Burkina Faso on the generalised map in Brown *et al.* (1982: 377), but not in Snow. J.F.W. found it quite common in the Ouagadougou area.	3,6,11,17,25,39,47,49,76,104
Butastur rufipennis Grasshopper Buzzard	3,25,31,36,65,66,69,70,75,90,98
Buteo auguralis Red-necked Buzzard Listed by G & S and shown as occurring in SW Burkina Faso on the generalised map in Brown *et al.* (1982: 400), but not in Snow.	13,25,26,30,73,79
Falco tinnunculus Kestrel	55,64,88
Falco alopex Fox Kestrel	53[1]
Falco biarmicus Lanner Falcon	66,84
Ptilopachus petrosus Stone Partridge	69H,83
Francolinus albogularis White-throated Francolin	53?[2]
Francolinus bicalcaratus Double-spurred Francolin	1,4,9,11,12,20,25,30,31,36,38,41,42,44,45,47,51,53,69,73,83,98
Porphyrio alleni Allen's Gallinule	27[1],39[c.12]
Gallinula angulata Lesser Moorhen	76[1]
Neotis denhami Denham's Bustard	17[1],105[1]
Eupodotis ruficrista Crested Bustard This species is recorded at scattered localities across the savanna woodland belt of W Africa from Senegal to N Nigeria (Snow, Urban *et al.* 1986: 166), but there are apparently no previous records from Burkina Faso. Chappuis *et al.* (1979) describe and discuss the vocalisations of the W African *E. r. savilei,* which may well be a distinct species from *E. r. ruficrista*.	9,11H,12[c.10H],15H,20H,23H,25[c.6H],31,36H,38H,39H,44H,83H
Actophilornis africana African Jacana	6,27,32,39,50,52,57,76,77,79*,87,95,96
Himantopus himantopus Black-winged Stilt Listed by G & S and shown as occurring in Burkina Faso on the generalised map in Urban *et al.* (1986: 194), but not in Snow.	87[2],95[10]

Continued

Species	**Observation localities**
Recurvirostra avosetta Avocet	101[1]
Occurrence of this species in N and E Burkina Faso is shown on the generalised map in Urban *et al.* (1986: 196), but not in Snow nor in G & S.	
Burhinus senegalensis Senegal Thick-knee	22
Burhinus capensis Spotted Thick-knee	31,69
Cursorius temminckii Temminck's Courser	88[1]
Cursorius chalcopterus Bronze-winged Courser	88H[c.5]
Vanellus senegallus African Wattled Lapwing	14,15,92,95
Vanellus tectus Black-headed Lapwing	68,88
Philomachus pugnax Ruff	3[2]
Tringa nebularia Greenshank	50[1],85[5]
Tringa ochropus Green Sandpiper	17[1]
Actitis hypoleucos Common Sandpiper	6,22,40,42,85
Pterocles quadricinctus Four-banded Sandgrouse	11,83
Treron calva African Green Pigeon	51
Listed by G & S and shown as occurring in S Burkina Faso on the generalised map in Urban *et al.* (1986: 443), but not in Snow.	
Treron waalia Bruce's Green Pigeon	30,33,36,39,51,60,82
Turtur abyssinicus Black-billed Wood Dove	4,11,12?H,13?,20H,25?,30, 31?,36,38,44?H,45,47,50?, 51,53,60?H,69,73?H,75?, 81,83?H,88?,98
Oena capensis Namaqua Dove	75,79,83,87,98
Listed by G & S and shown as occurring widely in Burkina Faso on the generalised map in Urban *et al.* (1986: 456), but not in Snow.	
Columba guinea Speckled Pigeon	103
Columba livia Feral or Domestic Pigeon	27
Streptopelia semitorquata Red-eyed Dove	51,79
Listed by G & S and shown as occurring widely in Burkina Faso on the generalised map in Urban *et al.* (1986: 480), but not in Snow.	
Streptopelia vinacea Vinaceous Dove	3,4,11,12,13,15,20,23,25, 26,30,31,36,38,41,42,44,45, 46,47,50,51,53,60,66,69,73, 75,76,77,81,83,87,88,98
Streptopelia senegalensis Laughing Dove	4,13,15,30,31,38,39,46,47, 50,53,69,73,75,77,81,83,87, 88,98
Poicephalus senegalus Senegal Parrot	3,4,11,12,20,31,38,44,45, 50,51,69,88,99
Psittacula krameri Rose-ringed Parakeet	2,12,15,32,44,45,46,51,69, 73,81
Musophaga violacea Violet Turaco	51,60
Listed by G & S and shown as occurring in S Burkina Faso on the generalised map in Fry *et al.* (1988: 46), but not in Snow.	
Crinifer piscator Western Grey Plantain-eater	7,9,13,38,39,44,45,48,50, 51,52,69,73,79,81
Oxylophus jacobinus Jacobin Cuckoo	30,37

Continued

Species	**Observation localities**
Oxylophus levaillantii African Striped Cuckoo	49,54,66
Listed by G & S and shown as occurring in S Burkina Faso on the generalised map in Fry *et al.* (1988: 62), but not in Snow.	
Cuculus gularis African Cuckoo	25
Widespread occurrence in Burkina Faso is shown on the generalised map in Fry *et al.* (1988: 76), but not at all in Snow. G & S apparently record it as part of *C. canorus*.	
Centropus grillii Black Coucal	39[3],57[1],87[1]
Centropus senegalensis Senegal Coucal	4,10,20,36,39,50,51,79
Tyto alba Barn Owl	24+,88H
Listed by G & S and shown as occurring throughout Burkina Faso on the generalised map in Fry *et al.* (1988: 108), but not in Snow.	
Otus leucotis White-faced Scops Owl	44H,69H,83H,98H
Listed by G & S and shown as occurring throughout Burkina Faso on the generalised map in Fry *et al.* (1988: 119), but not in Snow.	
Glaucidium perlatum Pearl-spotted Owlet	88H
Listed by G & S, but not shown by Snow or Fry *et al.* (1988: 139). J.F.W. recorded it at Ouagadougou. There are records from Mali, Ghana, Togo and Benin.	
Caprimulgus climacurus Long-tailed Nightjar	98H
Macrodipteryx longipennis Standard-winged Nightjar	86+,102+
Telacanthura ussheri Mottled Spinetail	11[2]
Apparently not previously recorded in Burkina Faso (cf. Snow, G & S), despite its occurrence in the southwest of the country being shown on the generalised map in Fry *et al.* (1988: 202).	
Cypsiurus parvus African Palm Swift	19,30,45,55,70
Apus caffer White-rumped Swift	31[6],51[2]
Listed by G & S but otherwise apparently unrecorded in Burkina Faso (cf. Snow, Fry *et al.* 1988: 227), although known from Ivory Coast to Nigeria.	
Apus affinis Little Swift	51,56,76
Halcyon leucocephala Grey-headed Kingfisher	18,35
Halcyon senegalensis Woodland Kingfisher	4,6,16,39,52,59
Halcyon chelicuti Striped Kingfisher	29,31,36H,44H,45,53H,57H,98
Corythornis cristata Malachite Kingfisher	50,51,76
Ceryle rudis Pied Kingfisher	42,89
Merops orientalis Little Green Bee-eater	11,36,88
Merops apiaster European Bee-eater	51[8],53[3],60H
Apparently not previously recorded in Burkina Faso, although known from Ivory Coast, Ghana, Togo and Benin (Fry *et al.* 1988: 332).	
Merops nubicus Carmine Bee-eater	100[2]
Coracias naevia Rufous-crowned Roller	9,11,25,26,31,45,47,53,88
Coracias abyssinica Abyssinian Roller	10,17,19,40,71,87
Listed by G & S and shown as occurring throughout Burkina Faso on the generalised map in Fry *et al.* (1988: 343), but not in Snow.	

Continued

Species	**Observation localities**
Eurystomus glaucurus Broad-billed Roller	4,42,56,57,59
Phoeniculus purpureus Green Wood-Hoopoe	3,4,16,41,44
Phoeniculus aterrimus Black Wood-Hoopoe	75
Upupa epops Hoopoe	30,88
Tockus erythrorhynchus Red-billed Hornbill	4,6,11,12,13,20,21,31,38,41,44,45,47,51,79,83
Tockus nasutus African Grey Hornbill Listed by G & S, but, although common and widespread, apparently not otherwise reported before from Burkina Faso. It is recorded from Mali and from the Ivory Coast to Nigeria (Snow, Fry *et al.* 1988: 398).	11,12,23,25,26,32,36,44,51,53,69,70,73,75,79,81,83
Pogoniulus chrysoconus Yellow-fronted Tinkerbird	4,69,73,83,88,98
Lybius vieilloti Vieillot's Barbet	11,30,31,36,47,73
Lybius dubius Bearded Barbet	45,53
Indicator indicator Greater Honeyguide Listed by G & S and shown as occurring throughout Burkina Faso on the generalised map in Fry *et al.* (1988: 501), but not in Snow.	12
Campethera punctuligera Fine-spotted Woodpecker	60
Dendropicos goertae Grey Woodpecker	87
Eremopterix leucotis Chestnut-backed Finch-Lark	78,80,83,88
Galerida modesta Sun Lark	12,72,73,83
Mirafra rufocinnamomea Flappet Lark	25,30,31,36,38
Delichon urbica House Martin Apparently not previously reported from Burkina Faso, except perhaps for a few January records listed by G & S. It is described as "not uncommon" in Ghana (Grimes 1987) and "uncommon" in Nigeria (Elgood 1981).	66[c.25],71[c.200],73[c.15],76[c.60],77[c.50],83[c.30]
Hirundo abyssinica Lesser Striped Swallow	51
Hirundo lucida Red-chested Swallow	34,39,46,50,51
Hirundo rustica European Swallow	50,57
Hirundo semirufa Rufous-chested Swallow	4,9,12,13
Hirundo senegalensis Mosque Swallow There are no records from Burkina Faso in H & M but it is listed by G & S.	32,39
Riparia riparia European Sand Martin Widely recorded as a passage migrant and winter visitor in W Africa, but apparently not previously noted in Burkina Faso except perhaps for a few April records listed by G & S.	27
Motacilla flava Yellow Wagtail	87
Pycnonotus barbatus Common Bulbul	12,30,36,38,45,50,51,53,55,60,69,73,75,79,83,88,98
Prionops plumata White Helmet-Shrike	11,28,41,44,47,51,83
Corvinella corvina Yellow-billed Shrike There are no records from Burkina Faso in Hall & Moreau (1970), but it is listed by G & S and recorded at Ouagadougou by J.F.W.	8,11,12,38,69
Dryoscopus gambensis Puff-back There are no records from Burkina Faso in H & M, but it is listed by G & S and recorded at Ouagadougou by J.F.W.	39,45,83
Lanius senator Woodchat Shrike	94
Laniarius barbarus Gonolek	45,51,79,81,83

Continued

Species	Observation localities
There are no records from Burkina Faso in H & M, but it is listed by G & S and recorded at Ouagadougou by J.F.W.	
Malaconotus blanchoti Grey-headed Bush-Shrike	83
There are no records from Burkina Faso in H & M, but G & S report a few occurrences and J.F.W. recorded it at Ouagadougou.	
Nilaus afer Brubru	69,88,98
Tchagra senegala Black-headed Bush-Shrike	25,26,30,36,53,69,75,83,88, 98
Cercotrichas galactotes Rufous Bush-Chat	26,31,81
Cossypha niveicapilla Snowy-headed Robin-Chat	45,51,60
There are no records from Burkina Faso in H & M, but it is listed by G & S and J.F.W. recorded it at Ouagadougou.	
Oenanthe bottae Red-breasted Wheatear	83
There are no records from Burkina Faso in H & M, but it is listed by G & S. J.F.W. mentions unpublished records from Zorgo and Houndé	
Oenanthe oenanthe Northern Wheatear	88
Phoenicurus phoenicurus Redstart	75
Saxicola rubetra Whinchat	67
Turdus pelios African Thrush	30,51
There are no records from Burkina Faso in H & M, but it is listed by G & S and Walsh & Walsh (1988) state that it is common in the Ouagadougou area.	
Turdoides plebejus Brown Babbler	4,51,83
There are no records from Burkina Faso in H & M, but it is listed by G & S.	
Camaroptera brevicaudata Grey-backed Camaroptera	4,11,12,30,31,36,45,47,51, 60,69,73,75,79,81,83,98
Cisticola cantans Singing Cisticola	53
Cisticola galactotes Winding Cisticola	36,39
Apparently not recorded previously from Burkina Faso (cf. H & M, G & S).	
Cisticola juncidis Zitting Cisticola	26H,29,30,31,36H,39
No records from Burkina Faso are shown in H & M, but Serle *et al.* (1977: 211) list its occurrence in 'Volta' and it is listed by G & S.	
Cisticola natalensis Croaking Cisticola	36
There are no records from Burkina Faso in H & M, but it is listed by G & S.	
Cisticola rufa Rufous Cisticola	25,26,73,88
Eremomela pusilla Smaller Green-backed Eremomela	13,47,53,60,69,73,88,98
Hippolais pallida Olivaceous Warbler	79
Hippolais polyglotta Melodious Warbler	79
Phylloscopus sibilatrix Wood Warbler	11,30
Phylloscopus trochilus Willow Warbler	4,30?
Prinia subflava Tawny-flanked Prinia	25,26,30,31,32,45,51,53,69, 73,88
Sylvietta brachyura Crombec	11,69
There are no records from Burkina Faso in H & M, but it is listed by G & S and J.F.W. recorded it at Ouagadougou.	
Bradornis pallidus Pale Flycatcher	36,88,98

Continued

Species	Observation localities
Melaenornis edolioides West African Black Flycatcher	51,60
There are no records from Burkina Faso in H & M, but it is listed by G & S and J.F.W. recorded it in the Ouagadougou area.	
Muscicapa gambagae Gambaga Dusky Flycatcher	75
Apparently not previously recorded in Burkina Faso (cf. H & M, G & S), although the type locality is nearby in N Ghana (Grimes 1987). This species is easily confused in the field with *M. striata* and perhaps with *B. pallidus*. (Other *Muscicapa* which might be confused, such as *M. adusta* and *M. aquatica*, do not occur in this habitat in W Africa and both of these also differ in lacking such definite breast streaking). We observed a single bird closely in dry savanna woodland and noted field characters that have subsequently been checked by study of museum specimens; both of the species with which confusion is most likely were seen repeatedly within a few weeks of this sighting.	
Batis senegalensis Senegal Puffback Flycatcher	25,36,51,53,69
Erannornis longicauda Blue Flycatcher	60
There are no records from Burkina Faso in H & M, but it is listed by G & S and J.F.W. recorded it close to our locality.	
Terpsiphone viridis Paradise Flycatcher	51
There are no records from Burkina Faso in H & M, but it is listed by G & S and J.F.W. found it to be common in the Ouagadougou area.	
Anthreptes platurus Pygmy Sunbird	88,98
Nectarinia pulchella Beautiful Sunbird	4,11,15,25,30*,36,45,50,98
There are no records from Burkina Faso in H & M, but it is listed by G & S; very common in the Ouagadougou area (J.F.W.).	
Nectarinia senegalensis Scarlet-chested Sunbird	4,12,36,41,45,47,51,53,69,75,88,98
There are no records from Burkina Faso in H & M, but it is listed by G & S; very common in the Ouagadougou area (J.F.W.).	
Zosterops senegalensis Yellow White-eye	47*,73
Emberiza flaviventris Golden-breasted Bunting	4,20,25,30,31,36,45
Emberiza forbesi Brown-rumped Bunting	53
Emberiza tahapisi Cinnamon-breasted Rock Bunting	23,31,45,79,83
Serinus leucopygius White-rumped Seedeater	13,30
Serinus mozambicus Yellow-fronted Canary	25,30,36,38,50,51,53,69,70,75,79,81,98
Ploceus cucullatus Village Weaver	6*,13,39*,40*,50,51
Ploceus luteolus Little Weaver	4,11,12,13
There are no records from Burkina Faso in H & M, but it is listed by G & S; a few are resident near Ouagadougou (J.F.W.).	
Ploceus velatus Southern Masked Weaver	30*,31*,36*,38,43,45,69,75,79*
Euplectes afer Yellow-crowned Bishop	39,40,46,51,52,56
There are no records from Burkina Faso in H & M, but it is listed by G & S; reasonably common in the Ouagadougou area (J.F.W.).	

Continued

Species	**Observation localities**
Euplectes franciscanus West African Red Bishop	10,16,30,36,39,40,42,43,45,46,50,51,52,55,56,57
There are no records from Burkina Faso in H & M, but it is listed by G & S; reasonably common in the Ouagadougou area (J.F.W.).	
Euplectes hordeaceus Black-winged Red Bishop	39,43,46,50,51,52,60
There are no records from Burkina Faso in H & M, but it is listed by G & S; reasonably common in the Ouagadougou area (J.F.W.).	
Quelea erythrops Red-headed Quelea	51
There are no records from Burkina Faso in H & M, but it is listed by G & S (1979) and Thonnerieux (1988) includes evidence of breeding.	
Vidua chalybeata Green Indigo Bird	13,30,45,79
Listed by G & S and 2 records from Burkina Faso were given by Payne (1982: 13, 76). J.F.W. obtained many records at Ouagadougou.	
Vidua macroura Pin-tailed Whydah	13,50
Vidua paradisea [Broad-tailed] Paradise Whydah	12,13,26,30,36,79,81
Bubalornis albirostris Buffalo Weaver	4,91*
Sporopipes frontalis Speckled-fronted Weaver	4,11,12,13,23,25,30,36,45,81,88
Apparently not previously reported from Burkina Faso (cf. H & M, G & S); J.F.W. recorded it at Koubri near Ouagadougou and at Oursi (14°40′N.).	
Plocepasser superciliosus Chestnut-crowned Sparrow-Weaver	30,45,88
Passer griseus Grey-headed Sparrow	4,11,13,15,25,30,36,38,39,40,45,46,50,51,55,79
Petronia dentata Bush Petronia	4,11,12,25,36,41,47,53,73,75,79,83,88,98
Estrilda caerulescens Red-tailed Lavender Waxbill	51
Estrilda troglodytes Black-rumped Waxbill	13,15,30,83
Lagonosticta vinacea Vinaceous Firefinch	53
Lagonosticta senegala Red-billed Firefinch	30,36,75
Several records from Burkina Faso were reported by Payne (1982: 13, 81). J.F.W. trapped large numbers for ringing at Ouagadougou.	
Lonchura cucullata Bronze Mannikin	51
Pytilia melba Green-winged Pytilia	4,11,12,25,53,73
Uraeginthus bengalus Red-cheeked Cordon-bleu	4,11,12,13,20,25,26,30,31,36,38,45,47,50,51,53,60,69,73,75,79,83,88,98
There are no records from Burkina Faso of this common bird in H & M, but it is listed by G & S and J.F.W. found it was fairly common in the Ouagadougou area.	
Buphagus africanus Yellow-billed Oxpecker	40
There are no records from Burkina Faso in H & M, but it is listed by G & S.	
Cinnyricinclus leucogaster Violet-backed Starling	50
Lamprotornis caudatus Long-tailed Glossy Starling	3,4,6,11,12,13,15,39,41,42,45,51,74,87,95

Continued

Species	**Observation localities**
Lamprotornis chalcurus Bronze-tailed Glossy Starling	47?,55,58
Lamprotornis chalybeus Blue-eared Glossy Starling	4,8?,38,45?,50?,88?
Apparently not previously recorded from Burkina Faso (cf. H & M, G & S).	
Lamprotornis purpureus Purple Glossy Starling	11,12,20?,45,48,50,55,69
Spreo pulcher Chestnut-bellied Starling	4,36,45,88,98
Dicrurus adsimilis Fork-tailed Drongo	4,10,11,13,20,25,45,46,47, 53,69,75,88,98
Oriolus auratus African Golden Oriole	4,11,38,39,45,53,73
There are no records from Burkina Faso in H & M, but it is listed by G & S; J.F.W. recorded it at Ouagadougou during the rains (June–Nov).	
Ptilostomus afer Black Magpie	3,24,97
Corvus albus Pied Crow	21,30,31,53,69,78,83,84,87, 88,96,98

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Additions and corrections to the avifauna of Zaïre (4)

by M. Louette

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These comments are a follow up of 3 earlier parts (Louette 1987, 1988) and are based on study of specimens in Koninklijk Museum voor Midden-Afrika (KMMA) and on field observations by R. F. V. Maes, between 1956 and 1978, near Bwamanda (03°10′N, 19°15′E), which only recently became available.

Milvus migrans

It is noteworthy that Maes found this species to be a common breeding bird in the general area of Bwamanda: nestbuilding begins November–December, young are in the nest in March (one left the nest 15 May). The species is absent there from (19) June till (3) September.

Micronisus gabar

Breeding was recorded by Maes at Bwamanda on an isolated *Fagara macrophylla* tree, from 1 May to 9 June 1961, when 2 young left the nest. Breeding was attempted again the following year during the same period, but was foiled by destruction of the tree. This record was incorrectly given under *Aviceda cuculoides* by Schouteden (1962). It is the first record of this species in northern Zaïre, but there are a few other records close to the forest region.

Falco ardosiaceus and *F. dickinsoni*

The distribution map in Snow (1978) shows their parapatry in Shaba (see Map in Louette 1986: 130), both species occurring together at Kasaji (10°23′S, 23°28′E): 2 *ardosiaceus* specimens (dated 7 March 1949 and 19 February 1951) and one *dickinsoni* (dated 12 May 1950) from that locality are in KMMA. The southeasternmost record in Snow (1978) of *ardosiaceus*, if based on a KMMA-specimen from Katofio (11°03′S, 28°02′E), is in error for the other species.

The KMMA has 3 specimens from Tembwe (06°31′S, 29°26′E): No. 12476 is a normal *ardosiaceus*, taken in 1923, but the other 2, taken by Schouteden in February 1926, are aberrant. No. 14963 is close to *ardosiaceus*, but much paler ventrally than any of the other 50 specimens in the KMMA collection and its lower abdomen is tinged rufous. It is an adult, completing moult of primaries and rectrices. No. 14965 is definitely intermediate between both species in plumage characteristics. Dorsally, it looks somewhat like *dickinsoni*, but its mantle is paler, resulting in less contrast with the pale head; its rump is too dark for that species and the tail is grey as in *ardosiaceus*, with only some indication of barring. Ventrally, it is distinctly barred whitish, from the breast downwards, thus even more extensively than is usual in *dickinsoni*, and its undertail is intermediate in pattern between the 2 species. In measurements (Table 1), No. 12476 agrees completely with *ardosiaceus* and No. 14963 likewise

TABLE 1
Measurements (mm) of *Falco ardosiaceus* and *F. dickinsoni* from Zaïre

	Wing		**Tail**		**Tarsus**	
	$\bar{x}$	range	$\bar{x}$	range	$\bar{x}$	range
ardosiaceus						
10♂♀	233.9	224.0–248.0	152.0	141.5–160.5	40.3	38.5–42.0
dickinsoni						
10♂♀	224.1	215.0–232.0	137.2	131.0–141.0	36.3	34.0–39.0
Tembwe specimens:						
12476	243.0		156.0		40.0	
14963	237.0		151.5		37.5	
14965	222.0		135.0		37.0	

(except for the shorter tarsus); but No. 14965 agrees with *dickinsoni*. I consider at least this last one to be a hybrid.

Falco tinnunculus

While it is true that the nominate race, a migrant from the Palaearctic, occurs widely, some comments are needed as to the status of the resident birds. Lippens & Wille (1976) mention "niche assez communément au Zaïre, en dehors de la grande foret. . ." but show a picture of a nest with parent and young of the nominate race. No doubt exists that the race *rufescens* breeds in northeastern Zaïre, but their mentioning of *rupicolus* doing so was most likely based on Verheyen (1953), who took 3 nestlings in the Upemba Park (Shaba) and attributed them to "*rhodesi*" (=*rupicolus*). Verheyen did not take the adult, so the determination is doubtful, especially since *rupicolus* is a southern race and not known to breed in the neighbouring areas of Zambia (Benson *et al.* 1971) or Angola (Pinto 1983). From southern Zaïre, there are only 2 old specimens in KMMA: "region of Boma, Lower Zaire", acquired in 1939 and "Kabeça, S. Moero, Katanga", taken in 1899, and both these are *rufescens*; but the specimen mentioned by Schouteden (1971) from Kasapa is in fact *F. naumanni*. The real identity of the kestrels in southern Zaïre remains to be studied and proof is also awaited before *rupicolus* is accepted on the Zaïre list.

From notes by Maes, it appears that the *rufescens* specimen he took on 18 December 1959 at Bwamanda, was with another, which was apparently feeding young in a nest situated in a tree, a position unusual for the African forms of this species.

Pachycoccyx audeberti

According to Irwin (1988), this cuckoo ignores *Prionops plumatus* as a possible host. However, the KMMA has a nestling of the cuckoo, taken at Gangala-na-Bodio (03°41′N, 29°08′E) on 12 January 1955, in the nest of that helmet shrike, which resembles its foster parents so closely in plumage colour and pattern, that it was in fact mistakenly identified as such, both by the collector Ch. Cornet d'Elzius and by H. Schouteden. At the same locality, a fledgling of *P. audeberti* was taken by the same collector on 6 March 1956. *Prionops plumatus* is the only helmet shrike occurring in the general area of Gangala-na-Bodio (=the Garamba Park) (Chapin 1954), where from the KMMA has a series of specimens, including fledglings. In the absence of *P. retzii* here, it would surprise me if *P. plumatus* were not the usual host.

Caprimulgus batesi

The voice of this species is not yet recorded (Chappuis 1981), but Chappuis supposed that the bird belongs vocally in the group emitting short notes or series of short notes. Indeed, Maes, who heard *C. batesi* often near Bwamanda, describes it as a rapid "*hohohohohoho*", repeated several times, which is exactly the sound that Chapin (1939) supposed to belong with this nightjar.

Nilaus afer

Hall & Moreau (1970) consider the whole of southern Zaïre to be occupied by the race *nigrotemporalis* (type locality: Ngome, Tanzania), characterized by a short eye-stripe and by chestnut markings on the underparts. This is not so: a pair from Mount Kabobo (05°06′S, 29°01′E) has no chestnut markings at all and it does not differ from the race *affinis*, described from Caconda, Angola. In fact, Hall & Moreau mapped 3 intermediates between these 2 races: one from Mwinilunga, northwestern Zambia (White 1949) and 2 others in central Angola, suspecting even then that more would appear from the intervening area. Careful examination of Shaba adults in KMMA (excluding those from Mount Kabobo) shows that while 8 birds do not have traces of chestnut markings, 8 others show them clearly and 15 specimens are intermediate in this respect.

One further specimen, from Kisenda (c.11°S, 26°E), even has a long eye-stripe, a characteristic of other, far-away races. It is clear that this is an intergradation area (Fig. 1). It is surprising therefore that all 14 adults

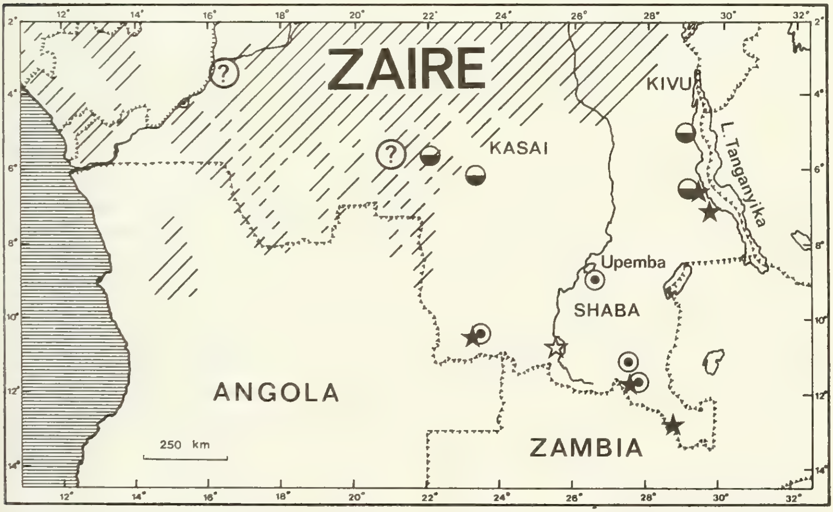

Figure 1. Phenotypes of *Nilaus afer* in southern Zaïre. ◒: *affinis*; ⊙: *nigrotemporalis*; ★: intermediates; ☆: intermediates, including one with a long superciliary stripe; ⓘ?: immatures, race unkown.

TABLE 2
Measurements (mm) of *Apalis jacksoni* from Zaïre

Region		**Wing**		**Tail**	
		$\bar{x}$	range	$\bar{x}$	range
50.0–53.0					
	4♀	49.0	47.5–50.5	46.3	45.0–47.5
Uele?	♀?	47.0			45.0
Kivu	10♂	53.9	51.5–56.5	57.9	52.0–62.0
	10♀	51.5	50.0–53.5	51.3	48.0–54.5
Mount Kabobo	♂	56.0		65.5	
Kenya (incl. Mt. Elgon)	6♂	54.9	52.0–58.0	60.2	56.0–65.0
	2♀	51.0,51.5			53.5,57.0

collected by Verheyen (1953) in the Upemba Park, which I re-examined, do possess the chestnut markings and must indeed be considered as *nigrotemporalis*. In southwestern Zaïre, the race is *affinis:* of 3 specimens from Tshibungu and 3 from Merode, 3 do not show chestnut marking, the others faint traces only. The specimens mentioned by Schouteden (1956) from Kabambaie and Kwamouth are in fact immatures (marked ? on Fig. 1).

Apalis jacksoni

Ogilvie-Grant (1917) introduced *minor* for the population from lowland Cameroon. Chapin (1953) accepted this name as well (but only reluctantly), for the bird collected in northern Zaïre on the Uele river at Angu, because its measurements were smaller than the nominate race (type from Mount Elgon, on the Kenya-Uganda border), whereas the other populations in Zaïre (from easternmost Ituri south to the area northwest of Lake Tanganyika) were included by him in the nominate race. In KMMA, there is an apparent female, labelled "Kabalo", but said by Schouteden (note in catalogue) to come possibly also from Uele, and it is, indeed, small in measurements (Table 2). In fact, the specimens from Ituri are also smaller than those from Kivu and they are obviously in a geographical size cline (measurements for topotypical material of *minor* are given by Ogilvie-Grant). This conclusion had already been reached by Sclater (1930) for the Angu specimen.

I have compared our long series from Kivu with topotypical specimens from Mount Elgon (7), central Kenya (2), Rwanda (1) and Uganda (1) and can find none of the constant differences mentioned by Parkes (1987) between these populations, though colour intensity and extent of facial mask vary somewhat. In measurements, the East African ones are in the range of the Kivu birds, except for a tendency towards a longer tail; this is also observed, however, in the male from Mount Kabobo, the southernmost locality for this warbler in Zaïre. I consider all the montane populations to belong to the nominate race, but the northern birds, from Uele and Ituri, may be called *minor*.

Sylvietta leucophrys

Parkes (1987) described recently a new subspecies, *arileuca*, from Mpanga Forest near Mount Ruwenzori, on the Zaïre-Uganda border. Until then, the birds from Ruwenzori were considered to belong to the nominate race (type locality: Mount Elgon), the only population of this race in Zaïre. The race *chloronota* was described from near Baraka, southern Kivu. In Zaïre, the Lendu Plateau, Mount Ruwenzori and the Kivu Highlands are separate entities if one uses the 1500 m altitude as the lower level of montane forest. The KMMA has 9 specimens from Ruwenzori, the only 3 specimens known of the race (or "species") *chapini* from the Lendu Plateau, 4 specimens of the nominate race from Kenya and 79 specimens from Kivu.

As Chapin (1953) has stated, *chapini* differs only in its lacking the white band above the lores and eyes, and I accept his suggestion that this is merely a race of the species *leucophrys*. Immatures of *chloronota* lack the white superciliary stripe of the adult or only show a faint indication of it, their mantle is heavily washed rusty and they are much darker underneath than adults; but without doubt the *chapini* specimens are adults, their crowns being decidedly chestnut and they have a rather pale ventral side, with the bill colour given on the labels as "brownish", "greyish pink" and "flesh, darker above". This bird may well be extirpated now, as the forest on the Lendu Plateau is gone, although Vrijdagh (1949) collected one of them in a *Eucalyptus* tree near a hotel. Adults of *chloronota* differ from the nominate race in lacking the brownish wash dorsally. As Chapin noticed, this difference is slight and Parkes himself considers some birds from northern Kivu as intergrades.

I checked the characteristics mentioned by Parkes that allegedly separate *arileuca* firmly from either nominate *leucophrys* or *chloronota*, *arileuca* exhibiting:

–a broader superciliary line, purer white and extending farther posteriorly. Present in the Ruwenzori specimens, but a few from Kivu match them. This is only apparent in well-prepared specimens—see also illustration of the living bird in Lippens & Wille (1976).

–paler and purer grey underparts, mid-abdominal area pure white. My material would, if anything, indicate the opposite.

–a narrow post-ocular line. No difference from *chloronota* was apparent.

–a paler bill. The labels on the Ruwenzori birds bear the following descriptions: "very light brown", "flesh colour", "light brown" (2), "horn brown?". The dried bills may indeed be paler in general than in *choloronota*, but some are alike. I cannot comment on the bill of the nominate race, for which I found the following label note: "brown horn, lower paler".

It appears that *arileuca* is hardly separable and is best considered an intermediate between nominate *leucophrys* and *chloronota*. It is remarkable that this bird appears to have the most white on the head of all races, whereas "nearby" *chapini* has none.

Nectarinia amethystina and *N. fuliginosa*

These 2 species belong in a superspecies, of which *N. rubescens* is not a member (Louette 1982).

The male in breeding plumage of *N. amethystina* is blackish-brown rather than bitter-chocolate in general colour and the metallic forehead reflects greenish, not purple as in *N. fuliginosa*; also *amethystina* lacks the

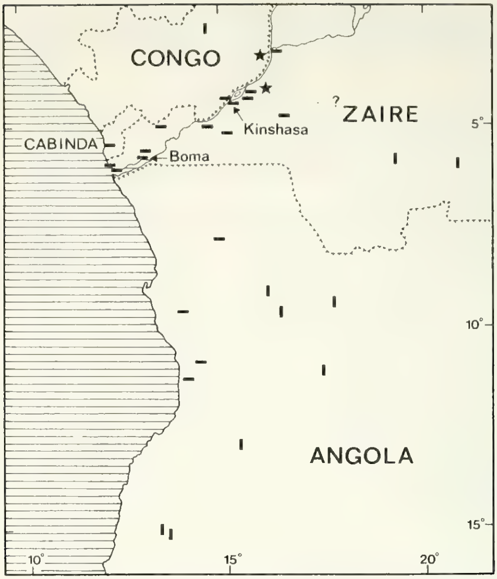

Figure 2. Occurrence of *Nectarinia amethystina* and *N. fuliginosa* in the western part of Zaïre and selected records in neighbouring countries. Vertical traits: *amethystina*; horizontal traits: *fuliginosa*; stars: hybrids.

yellow pectoral tufts. It must be stressed, however, that the 2 species are quite alike, especially in their females; in series *amethystina* displays a more olivaceous hue over the mantle.

N. amethystina occurs outside the forest belt, in southern Zaïre, the westernmost collecting-locality there being Gungu (05°44′S, 19°19′E—in Kwilu); there is only one record of the species more to the northwest, namely the male from Djambala in Congo, mentioned by Rand *et al.* (1959) (Fig. 2). Hall & Moreau (1970) have shown its range adequately, but they overlooked the occurrence of *N. fuliginosa* both in western Zaïre and Angola, although it was described from Malimba in the Cabinda enclave. This was corrected later by Hall (unpublished additions to the *Atlas*). In Congo, at N'gabe (03°08′S, 16°10′E), Malbrant & Maclatchy (1949) collected a hybrid, also examined by Chapin (1954). On the opposite side of the river Zaïre from N'gabe, a female (supposedly) of *N. fuliginosa* was collected years ago for the KMMA (Schouteden 1956), and we have recently obtained a male, moulting towards breeding plumage, from "Kuango", which I presume to be situated at 04°45′S, 16°36′E. There is also an immature from Kuilu-Ngongo at 04°24′S, 17°42′E in our collection, which could belong to either species.

Much earlier, Oustalet (1893) had described the race *fuliginosa nigrescens*, from Brazzaville, on account of the male's dark mantle, of the same colour as the rest of the plumage, whereas in nominate birds, from farther north and west, the upper mantle is distinctly paler and contrasts with the general plumage. Malbrant & Maclatchy (1949) and especially

TABLE 3
Measurements (mm) of *Nectarinia amethystina* and *N. fuliginosa* from Zaïre

Region		**Wing**		**Culmen**		**Tail**	
		x̄	range	x̄	range	x̄	range
fuliginosa							
coast	15♂	68.6	66.0–70.5	24.2	23.0–25.5	43.6	40.5–46.5
Kinshasa	15♂	70.5	68.5–73.5	25.7	25.0–26.5	43.0	40.5–46.0
amethystina							
South-Central	15♂	68.7	66.0–70.0	26.6	25.0–28.0	40.8	38.0–43.5
hybrid							
Nkiene	♂	70.0		26.5		45.0	

Bouet (1944) accepted *nigrescens*, but Chapin (1954) did not, because he found a specimen from Boma (close to Cabinda) did not differ from birds from Leopoldville (=Kinshasa), which is opposite Brazzaville on the Zaïre river. (The race *fuliginosa aurea*, with a decidedly pale upper mantle represents the species further west.)

N. fuliginosa, which is a coastal species elsewhere in its range, must be a common bird along the lower Zaïre river, judging from the number of museum specimens. In the following discussion only males in breeding plumage will be considered. From the general area of Boma (coast) the KMMA has 23 specimens with a rather pale mantle and 3 with a dark one, whereas from around Kinshasa, there are 11 'pale' birds and 17 'dark' ones; but it must be admitted that many of them are difficult to place, as this characteristic is rather poor, with intermediates present. In measurements (Table 3), the coastal birds appear to have a shorter culmen than those farther east, who seemingly approach a sample of westernmost *amethystina*, taken at Gungu, in Kasai and Kamina in westernmost Shaba (Fig. 2). It seems that in colour as well as in bill-length there is a trend from west to east, suggesting introgression of *amethystina* in *fuliginosa*: topotypical nominate *fuliginosa* and especially *nigrescens* seem affected.

From Nkiene (04°10′S, 15°55′E), just east of Kinshasa, there is a specimen in KMMA, which is almost certainly a (second) hybrid: it has pectoral tufts, but its plumage is rather blackish and its frontal metallic patch is greenish-blue, intermediate between the 2 species. These characteristics are also mentioned by Chapin (1954) for the other supposed hybrid from N'gabe (see above), which I have not been able to examine. As mentioned above, *amethystina* is known only from Gungu, 400 km away eastwards, except for the single Congo record to the northwest, which may be a vagrant or, more likely, in view of the existence of hybrids in the general area, a member of a relict population.

From the Field Museum of Natural History, Chicago, I have received on loan 9 males of *amethystina*, all from above the escarpment in Angola, the closest locality to Kinshasa being "NE of Duque de Bragança (=c. 08°40′S, 16°15′E), 450 km distant. None of those examined is showing traces of hybridization, nor are the 2 males of *fuliginosa* from below the escarpment, near Muxima (09°30′S, 13°55′E) and near Gabela (c. 11°S, 14°20′E); both possess a dark chocolate mantle and the one with an intact bill (26.0 mm long) is in the range of the measurements from near

Kinshasa. Traylor (1963) mentions *fuliginosa* also from Canzele, more to the northeast in Angola, but I have not seen this specimen.

Because there is no indication of a hybridization zone in Angola and since hybrids are only occasional near Kinshasa, in the range of *fuliginosa*, both taxa must provisionally still be considered as distinct species, notwithstanding an apparent introgression in the local population of *fuliginosa*. This species may be in a process of expanding its range inland.

It is preferable to use the subspecific name *nigrescens* for the population of *fuliginosa* from Angola and Zaïre, keeping in mind that the nominate race is geographically close.

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The status of *Streptopelia capicola onguati* Macdonald, 1957

by P. A. Clancey

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Streptopelia capicola (Sundevall) is the commonest of the ring-necked savanna woodland doves occurring in southern and eastern Africa, the southern subspecies being reviewed by Clancey (1960) and later adopted in the *S.A.O.S. Checklist* (Clancey 1980). Of the 5 subspecies recognized, one, *S. c. onguati* Macdonald, 1957, was described on 2 specimens, one taken on the property "Onguati" in the Kamanjab district of north-western Namibia (at 19°48′S, 14°39′E) being the type-specimen. The second example, on loan from the Übersee-Museum, Bremen, West Germany, had been collected on Eckenberg Farm in the same general area of Namibia in 1952. As part of his comparative material, Macdonald had, on loan from the Übersee-Museum, the *type* of *S. c. damarensis* (Hartlaub & Finsch), 1870, a mid-1800s C. J. Andersson skin from Otjimbingwe at 22°22′S, 16°08′E in the Namib. Macdonald did not further augment his material in order to define a plausible range for *onguati* and at the same time delimit that of the earlier *damarensis*. As will be appreciated, the type-localities of the 2 taxa do not lie particularly far apart.

Recent opinion (see Morel *et al.* 1986) is that *S. c. onguati* represents the desert (Namib) population, and *S. c. damarensis* that of the Namibian plateau and dry subcontinental interior. Such a view, however, overlooks the obvious taxonomic complication so raised; *onguati* of 1957 is in fact based on a plateau sample and *damarensis* of 1870 on a desertic one. The interpretation as in Morel *et al.* (1986) appears to have as its basis the findings of Traylor (1960), who commented to the effect that a series in the collection of the American Museum of Natural History, taken on the arid coast of southwestern Angola, conformed to the description of *onguati* in being paler than in the case of a putative sample of *damarensis* from Okahandja, north of Windhoek, in the Chicago Natural History Museum.

With the *type* of *damarensis* before him, Macdonald described *onguati* as being paler, with the dorsal sepia reduced to a light wash on the mantle and adjacent wing-coverts, and with the forehead pale bluish grey. Ventrally, the throat was described as white and the breast lilac-grey. The wing of the *type* was given as 155 mm.

A re-assessment of the geographical variation in southern Africa, during which over 70 specimens from central and northern Namibia were studied, confirms that at no point is it clinal but derives from an ancient secondary contact between (a) a restricted karoo and arid interior complex of populations distinguished by a bluish or light leaden grey pileum, drab or dull greyish brown dorsum and lavender grey breast, and (b) a tropical savanna woodland group, which arcs round (a) to the immediate north, east and southeast. In this latter group, the pileum is pinkish Mouse Gray (Ridgway 1912), the dorsum olive-brown, and the breast pale vinaceous-drab (pinkish) as opposed to lavender grey. Size also varies, arid country representatives having longer wings than those of moister, and especially coastal, regions. The secondary contact through time resulted in the formation of 2 relatively stabilized hybrid complexes, both of which share characters of one of the parental taxa, namely *S. c. tropica* (Reichenow), 1902: Songea, southeastern Tanzania. The western stabilized hybrid population extends from coastal southwestern Angola, south in the Namib to at least the Kuiseb R., and extends some way over the northwestern plateau of Namibia, and constitutes the revised subspecies *S. c. damarensis* (see below). In the case of the eastern hybrid-based form, which is resident in the moist southeastern highlands of southern Africa in Lesotho and adjacent areas—the subspecies *S. c. abunda* Clancey. 1960: Mooi River, Natal—this is more saturated than nominate *capicola* of the Cape Province, has the pileum as in *tropica* and the breast dark pinkish brown (Brownish Drab) as opposed to lavender grey. This taxon is, strangely enough, not alluded to by Morel *et al.* (1986).

Specimens from the plateau of northern Namibia examined were from Ondangua (17°54′S, 15°59′E), Orupembe (18°09′S, 12°32′E), Ohopoho (18°03′S, 13°50′E), Warmquelle (19°13′S, 13°53′E), Outjo (20°07′S, 16°09′E), Oshivelo (19°42′S, 20°35′E), Gaub Rhenisch Mission (Grootfontein), De Hoek (Gobabis), Okahandja, Karibib and Windhoek, etc. From further south in the territory, specimens from Aus, Bethanie, Mariental and near Keetmanshoop were available. This material reveals a marked shift in dorsal colouration with the mantle, scapulars and tertials increasingly more overlaid with light olive-brown as one proceeds northwestwards to the Namib Desert. While descriptive terms such as 'pale' or 'paler' in defining minor colour nuances of xeric populations of polytypic bird species are frequently all but valueless, in the present case the characters laid out in the original diagnosis of *onguati* are confirmed. Macdonald's description and the evidence provided by the adequate series now examined equate it with the bulk of Namibian plateau birds and with those of the entire subcontinental arid interior, and necessitate a reversal in the current usage of the available names *damarensis* and *onguati*. This is effected hereunder.

Streptopelia capicola damarensis (Hartlaub & Finsch), 1870

Mantle, scapulars and tertials in fresh dress light olive-brown; grey in wings pale smoke grey. On underside, breast about Ecru-Drab. Size large: wings of ♂♂ (n6) 156–166 (160.3), SD 3.38; ♀♀ (n8) 153–162 (156.5), SD 3.02 mm.

Range. Locally along the desertic coast of southwestern Angola and the Namib, Namibia, south to about the Kuiseb R. and over the plateau of Kaokoland and the immediate southeast. Intergrades with the following to the east of its range.

Streptopelia capicola onguati Macdonald, 1957

Differs from *damarensis* in having the vinaceous colouration over the hind-head and neck lighter (less saturated), and with the mantle, scapulars and tertials colder, with the upper mantle greyer and the rest of the dorsum Drab. Grey in wings a little darker and bluer, and with the breast pale drab-grey. Size ranging somewhat larger: wings of ♂♂ (n15) 159–167 (162.3), SD 2.49; ♀♀ (n6) 153–162 (158.9), SD 3.38 mm.

Range. The plateau of Namibia from Ovamboland and the Etosha Pan region, south to the lower Orange R., east to Botswana (to the south and southeast of the Okavango delta system), western Zimbabwe, western Transvaal and Orange Free State, and the northern Cape (south at least to Kuruman). Intergrades to the north of its range with *S. c. tropica,* and to the south with the nominate race of the Cape.

The third Namibian subspecies is *S. c. tropica*, which occurs in northern Ovamboland and extensively in the mid-Okavango drainage to the Caprivi and Okavango Swamps, the complete range as given in Clancey (1960). This taxon has the pileum pinkish Mouse Gray, and is more extensively and warmer (buffier) vinaceous over the proximal head and neck, the mantle olive-brown. Below, it is pinker over the breast (pale vinaceous-fawn), with both the throat and lower venter extensively white. Size runs smaller than the foregoing subspecies, with wings in ♂♀ (n14) from Mozambique 145–155 (150.3), SD 3.31 mm. There is evidence from the material examined that *tropica* extends on occasion south of its breeding range, as instanced by a Transvaal Museum specimen from Husab, on the Swakop R. in the Namib at 22°43′S, 15°01′E. Unfortunately, it has no date.

Acknowledgements

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Subspeciation in the Sociable Weaver *Philetairus socius* of the South West Arid Zone of Africa

by P. A. Clancey

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The Sociable Weaver *Philetairus socius* (Latham), 1790: Warmbad, southern Great Namaqualand, Namibia, is the sole member of a genus of sparrowlike birds peculiar to the dry acacia country and sub-desert of the South West Arid Zone of the Afrotropics, and is renowned for the frequently bulky communal breeding structures it builds in *Acacia* and other trees and in the rigging of telephone poles. It extends from the northwestern Cape Province, north through Namibia to the Etosha Pan National Park, and east to southwestern Botswana, the northern Cape and, marginally, to the southwestern Transvaal and western Orange Free State. Its closest allies are species of *Pseudonigrita*: *P. arnaudi* (Bonaparte) and *P. cabanisi* (Fischer & Reichenow), and, more remotely, the larger *Histurgops ruficauda* Reichenow, all of which are eastern African. Moreau (1962), following Clancey (1957), and later White (1967), admitted 4 subspecies of *P. socius*, these being the nominate race, *P. s. geminus* Grote, 1922, *P. s. eremnus* Clancey, 1957, and *P. s. lepidus* Smith, 1837. However, in the *S.A.O.S. Checklist* (Clancey 1980) only 3 were recognised, *lepidus* being treated as part of nominate *socius*.

Variation in the present species is complex with the 2 basic population groups clearly associated with the general colour of the substrate. The more widely distributed and numerically numerous of the groups—the nominate subspecies—is that directly inhabiting areas of reddish sand with scattered wind-contoured red Kalahari sand-dunes, which is distributed from southern Great Namaqualand and the Cape immediately south of the lower Orange R., east to southwestern Botswana and the northern Cape to the general area Kuruman–Olifantshoek–Postmasburg. This group is characterised by a buffish brown cap, dark brown subterminal feather crescents fringed greyish buff over the mantle, and light warm buff to the face and unpatterned ventral surfaces. Wings in such birds measure ♂♀ 75–80 mm. Immediately to the north and to the south of the foregoing group, darker birds are present, having the cap about Drab (Ridgway 1912), the dorsum darker with the mantle crescents blacker, and with the light facial and ventral surfaces less warm buff or whiter. In the north of the range in Namibia the wing-length declines (71–75.5), but in the dark birds lying to the south of the buffish ones, the wing-length is only fractionally shorter (73–79 mm) (Table 1).

As the colour and size patterns of variation are not strictly congruent, the differences in wing-length can only be used to a limited degree in arranging the populations into readily recognisable subspecies. In the case of the darker group of populations, this is again seen as an edaphic correlate, such birds occurring in karoo country, sub-desert (Namib edge) and saline pan environments. The disposition of the variation

TABLE 1
The wing- and tail-length (mm) variables (in ♂♀) in populations of the Sociable Weaver *Philetairus socius*

	Wings				Tails			
Locality	n	range	X̄	SD	n	range	X̄	SD
			Philetairus socius socius					
1. Kochena, NE of Grunau, S Namibia.	19	75–80	77.3	1.39	19	38–45.5	42·1	2·14
2. Perdepan, Gobabis, Namibia.	18	71.5–75.5	73.2	1.23	—	—	—	—
3. Gemsbok National Park, N Cape.	18	72–78	75.5	1.82	23	39–44	41.2	1.33
			Philetairus socius eremnus					
4. Prieska & Carnarvon, Cape.	17	73–79	75.8	1.63	8	40–45	42.2	1.48
Hoopstad, O.F.S.	1	77	—	—	—	—	—	—
5. Wolmaransstad, SW Transvaal.	16	72.5–78.5	75.3	1.76	—	—	—	—
6. Damaraland, Namibia.	10	71–75.5	73.7	1.43	10	38.5–44	41.0	1.80
			Philetairus socius xericus					
7. Aus & near Bethanie, Namibia.	6	75.5–81	78.5	1.94	6	41.5–44	42.8	0.93
			Philetairus socius geminus					
8. Okaukuejo & Leeubron, Etosha Pan, N Namibia.	8	72–75.5	73.7	1.28	8	38.5–42	40.3	1.18

Size-variation in *P. socius* is 2 dimensional and probably temperature dependent, with wing-length as an indicator of overall size shortest in the north of the range (nos. 2, 6 & 8) and largest in the south (nos. 1, 3, 4, 5 & 7). Transition between the extremes in the gradient is in the nature of a relatively narrow step centred from south-central Great Namaqualand, east to southwestern Botswana. In the case of the large-sized southern birds variation is clinal, with size (wing-length) increasing east (nos. 3, 4 & 5) to west (nos. 1 & 7) in association with cooler maritime conditions.

suggests relatively recent sundering and distributional retreat of the populations of darker coloured phenotypes occasional by the (now) more numerous paler and buffier birds, this resulting from an eastward spread of the latter from the basin of the lower Orange.

A re-assessment of the geographical variation in the Sociable Weaver (Fig. 1) based on an examination of over 270 specimens indicates the necessity of recognising 4 subspecies, for one of which a name is introduced. These are arranged hereunder.

Philetairus socius socius (Latham)

Loxia socia Latham, *Index Ornith.*, vol. i, 1790, p. 381: inland of Cape of Good Hope, restricted to Warmbad, southern Great Namaqualand, Namibia, by Macdonald, *Contr. Orn. West. S. Afr.*, 1957, p. 156.
Synonym: *Philetairus lepidus* Smith, Charlesworth's *Mag. Nat. Hist.*, new series, vol. 1, 1837, p. 536: districts round Latakoo = Kuruman, northern Cape.

Pileum Buffy Brown; mantle with feather bases light grey, dark sub-terminal crescents brownish black, fringed greyish buff; rump washed with light brown. Light facial and ventral surfaces Warm Buff. Size large.

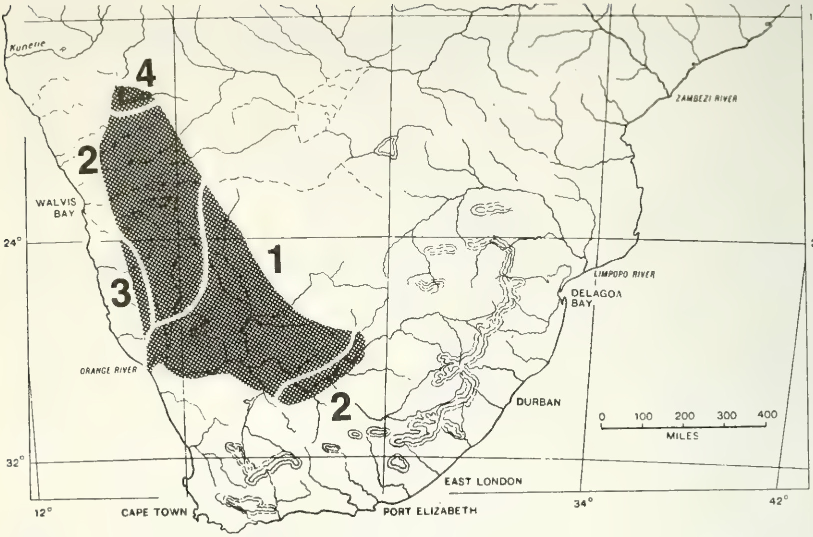

Figure 1. Sketch-map showing the disposition of the races of the Sociable Weaver *Philetairus socius*

1. *Philetairus socius socius* (Latham); 2. *Philetairus socius eremnus* Clancey; 3. *Philetairus socius xericus* Clancey; 4. *Philetairus socius geminus* Grote. It will be noted that the range of 2 is split into two sectors and the taxon is as a result polytopic.

Measurements. See Table 1. 207 specimens examined.

Range. Northwestern Cape Province to the south of the Orange R. in Bushmanland, southeast to Kenhardt, southern Great Namaqualand, Namibia, south from about Keetmanshoop to the Orange, and in the east north to about Gobabis (at Perdepan), southwestern and southern Botswana in the Gemsbok National Park, and the northern Cape from the Namibian border to Kuruman–Olifantshoek–Postmasburg. Ecologically associated with reddish sands and areas with red Kalahari sand-dunes. The most numerous subspecies.

Remarks. Smith, in his *Illustrations* (1838), uses the spelling *Philetaerus* for the generic name of the Sociable Weaver, the type of which is Swainson's *Euplectes lepidus,* as proposed in *Lard. Cab. Cyclopaedia,* vol. 2, Menageries, p. 309, this earlier than 1837. Smith's *Philetairus lepidus* as named in Charlesworth's *Mag. Nat. Hist.,* vol. i, 1837, from Kuruman district is, therefore, pre-occupied by Swainson's slightly earlier combination. Moreau (1962) equates Swainson's name with Latham's *Loxia socia* of 1790.

In the event of Swainson's *lepidus* being viewed as a *nomen nudum* and Smith as the specific name's author, the locality Kuruman and diagnostic characters place it as a synonym of nominate *P. socius*.

Philetairus socius eremnus Clancey, *Durban Mus. Novit.,* vol. v, 4, 1957, p. 48: Kransfontein, north of Prieska, northern Cape.

Differs from the nominate race on the basis of a darker cap (about Drab), and less buffish upper-surface, the mantle duller and the subterminal dark crescents broader and blacker, the apices somewhat whiter; rump greyer and more squamated, less uniformly buffy. Ventrally, with the chin and throat blacker and the light surfaces rather browner, less buffy. Southern population similar in size, but birds of the northern segment shorter winged.

Measurements. See Table 1. 52 specimens examined.

Range. Karoo country of the middle Orange R. from just north of Prieska in Griqualand West, southwest to Carnarvon, and locally to the northeast in the Vaal R. drainage of the western Orange Free State (Hoopstad) and southwestern Transvaal (at Wolmaransstad, east to Klerksdorp and Potchefstroom). Also Namibia north of the nominate subspecies on the plateau, occurring locally from north of Keetmanshoop to about Otjiwarongo, with the following specimens seen: Neisib, 35 km SW of Helmeringhausen; Mariental; Keres, N of Windhoek; Talana; Otjikango, Otjiwarongo; and Sturmveld and Wilhelmsrute, Gobabis district.

Remarks. P. s. eremnus is polytopic, with the nominate form interposed between its 2 population segments. A long series of specimens taken on the property Neisib, to the southwest of Helmeringhausen, and another sample from Kameelboom, to the northeast of Mariental, contain many specimens intermediate between nominate *socius* and *eremnus,* but with the majority referable to the latter.

Philetairus socius xericus, subsp. nov.

Type. ♀, adult. Plateau 38, 20 km E of Aus, western Great Namaqualand, Namibia. 15 October 1970. Collected by P. J. Buys. In the collection of the State Museum, Windhoek, Reg. No. 800.31 and CA 3340.

Similar to *P. s. eremnus,* as defined above, but with the light facial and ventral surfaces pearly vinaceous white rather than pale buff, and with the breast overlaid with drab. Compared with *P. s. geminus* of the Etosha Pan not so sharply marked with black and white over the mantle, the rump darker, and with the light facial and unpatterned ventral surfaces greyish white, washed with drab over the breast and not plain off-white as in *geminus.* Size larger than in *geminus.*

Measurements. See Table 1.

Measurements of the Type. Wing 79.5, culmen from base 17.5, tarsus 20, tail 43 mm.

Material examined. 6 (Plateau 38, 20 km, E of Aus; Vogelstrausskluft, Bethanie district, western Great Namaqualand).

Range. Presently known from near Aus and Bethanie, in western Great Namaqualand, but probably extending north along the escarpment edge inland of the Namib to about the Namib Naukluft Park.

Etymology. xericus, from Greek and modern ecology, affecting arid conditions.

Remarks. The whiter facial and ventral surfaces of *P. s. xericus* of the escarpment edge overlooking the Namib associate it with *P. s. geminus* of the arid Etosha Pan region in the north of the species' range. Further sampling of colonies just inland of the Namib to the north of Aus is desirable in order to fix the northern limits of *xericus.*

Philetairus socius geminus Grote, *Journ. f. Ornith.*, vol. lxx, 1922, p. 45: Okaukuejo, Etosha Pan National Park, northern Namibia.

Compared with *P. s. eremnus* differs in ranging a little paler over the pileum; mantle (including scapulars) lighter, the sub-terminal crescents blacker and sharply contrasted against the whitish apical fringes, and rump whiter. Facial and light ventral surfaces much whiter. Wings and tail colder, with the coverts and remiges edged paler. Similar in size to the northern population of *eremnus*. Differs from *P. s. xericus* in having the dorsal crescents deeper black and the mantle feather apices whiter. Facial and light ventral parts still whiter, and lacking the drab overlay to the breast present in *xericus*. Size smaller than in *xericus*.

Measurements. See Table 1. 8 specimens examined.

Range. Confined to the Etosha Pan National Park, northern Namibia, with most of the available records from Okaukuejo and Leeubron.

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Amazona auropalliata caribaea: a new subspecies of parrot from the Bay Islands, northern Honduras

by Sebastian Lousada

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In November 1987, S. Lousada, A. Morales and S. Ewing travelled to Honduras to investigate the distribution of Yellow-naped Parrots *Amazona auropalliata*. Our field work revealed 3 distinct forms of the subspecies *A. a. parvipes* inhabiting northern Honduras and the offshore islands. After discussions and correspondence with Burt L. Monroe and Thomas R. Howell, who first described *A. a. parvipes* from the Mosquitia region of eastern Honduras and northeastern Nicaragua, we concluded that there was evidence to describe one of these forms as a new subspecies:

TABLE 1

Typical soft-part colours of northern forms of the *Amazona ochrocephala* complex

Subspecies	Upper mandible	Lower mandible	Cere	Bristles	Eye-ring	Eye-lid edge
A. oratrix	V.P.H.	V.P.H.	White	White	White	White
A. o. belizensis	V.P.H.	V.P.H.	White	White	White	White
A. o. belizensis (NW Honduras)	V.P.H.	V.P.H.	Glauc.	White	White	Black
A. a. auropalliata	Variably dark	B.N.G.	Glauc.	Black	P.G.	Black
A. a. caribaea	P.H., M.P. at tip	Mostly P.H.	Glauc.	Black	P.G.	Black
A. a. parvipes (Mosquitia birds)	P.H., M.P. at tip	B.N.G.	Glauc.	Black	P.G.	Black

Notes. Immature birds of all these forms have darker areas on their mandibles. Colours from Smithe (1975, 1981): V.P.H. = very Pale Horn (92); P.H. = Pale Horn (92); Glauc. = Glaucous (80); M.P. = Medium Plumbeous (87); P.G. = Pearl Gray (81); B.N.G. = Blackish Neutral Gray (82).

Bristles = bristle-like feathers of the cere.

Amazona auropalliata caribaea subsp. nov.

Holotype. Carnegie Museum of Natural History No. 131584; adult ♀ from Isla Barbareta, Islas de la Bahia, Honduras, 11 April 1948; collected by A. C. Twomey.

Diagnosis. Differs from the type of *A. a. parvipes* of northeastern Honduras and northeastern Nicaragua in having a predominantly ivory-coloured bill closest to Pale Horn (92). (Capitalized colours from Smithe 1975, 1981.) The tip of the upper mandible is often Medium Plumbeous (87), especially in immature birds, which may have larger areas of this colour. The lower mandible is always much paler than that of *parvipes* of the Mosquitia region, which is generally Blackish Neutral Gray (82). (See Table 1).

A. a. caribaea also differs from the pale-billed, yellow-crowned and yellow-naped forms found in the Sula Valley of northern Honduras; fledgling *A. a. caribaea* have very little or no yellow in the head region, whereas the Sula Valley birds always leave the nest with yellow foreheads and crowns.

Distribution. Known only from Roatán, Barbareta and Guanaja of the Bay Islands off the northern coast of Honduras.

Description of holotype. General plumage Parrot Green (260). Lime Green (159) on underparts, but slightly more Cyan (164) on lores and forehead. Crown and forecrown have a narrow Sulfur Yellow band (157) running dorsally; nape and hindneck have a broad Spectrum Yellow band (55) across them, the green feathers in this region lightly margined in Blackish Neutral Gray (82). Bend of wing, Geranium Pink (13); carpal edge Lime Green (159); primaries and secondaries Parrot Green (260) becoming Indigo Blue (173) towards tips; the wing speculum, across bases of the 5 outer secondaries is Geranium Pink (13); under wing coverts and undersides of flight feathers Paris Green (63); dorsal major secondary caudal coverts towards Chartreuse (158). Tail, Parrot Green

TABLE 2
Selected measurements (mm) of *Amazona a. auropalliata, A. a. parvipes* and *A. a. caribaea*

		Wing (chord)	**Tail**	**Culmen** (from nostril)	**Middle toe** (without nail)
auropalliata	18⩽ ♂♂ (mean)	228.6	123.6	34.4	37.6
	15⩽ ♀♀ (mean)	220.7	121.7	32.6	35.8
parvipes	1 ♂ (type)	226.0	118.5	30.9	33.0
	1 ♂ (Sula Valley)	207.0	131.0	33.0	30.0
	1 ♀ (Sula Valley)	220.0	115.0	33.0	30.0
caribaea	1 ♀ (type)	217.0	125.0	33.0	31.3
	1 ♂	210.0	125.0	27.7	30.7
	1 ♂	210.0	120.0	32.3	32.9
	1 ♂	230.0	140.0	33.2	31.5

(260) tipped with Chartreuse (158), lateral feathers basally marked with Geranium Pink (13) and Sulfur Yellow (157) on inner webs, the outermost feathers lightly edged with Spectrum Blue (69). Mandibles closest to Pale Horn (92), edged and tipped very lightly in Medium Plumbeous (87).

Measurements. See Table 2. Note that *A. a. caribaea* and *A. a. parvipes* have smaller feet than *A. a. auropalliata*.

Specimens examined. A. a. caribaea:— HONDURAS: Isla Barbareta, 3 (CM = Carnegie Museum); Isla Guanaja. 1 (CM); Isla Roatán, 5 (BMNH = British Museum of Natural History, Tring). *A. a. parvipes*:— NICARAGUA: Leicus creek 56 miles NW Puerto Cabezas (UCLA = University of California, Los Angeles: Holotype, no. 51465, adult♂). HONDURAS: Sula Valley, 2 (CM).

I have also examined a series (20+) of *A. a. auropalliata* from Mexico, Guatemala, El Salvador, Nicaragua (BMNH) for comparison.

Etymology. This subspecies is named in recognition of the prominent role the tree species *Pinus caribaea* plays in the ecology of these birds.

Remarks

Variation within the subspecies. Variation among individuals of *A. a. caribaea* is most usually in the quantity of yellow feathers in the head region. However the key features were manifest in all the 60 individuals (9 museum skins, 51 captive birds) I have examined.

There appear to be no sexual differences in plumage colour or pattern, although there are noticeable differences that can be correlated with age. Before their first moult, young *A. a. caribaea* have little or no yellow on the nape or crown, and mandibles with at least some Medium Plumbeous (87) colouring. As they age, over the next few moults, yellow gradually comes in on the nape and also usually on the forecrown, where it is frequently present as a narrow band or a roughly triangular patch. Mature specimens have large yellow nape and hindneck patches that may encircle the neck to quite a considerable extent. Any Medium Plumbeous (87) colouration on the mandibles may gradually decrease in area and change to ivory or Pale Horn (92).

Ecology. The Caribbean Pine *Pinus caribaea* plays a prominent part in the ecology of these birds, providing nesting sites, food and shade. Twice a bird was seen on Isla Guanaja eating parts of 2 pine cones, probably the immature seeds (26% protein, 2% carbohydrate, 26% fat: *per* Rosemarie Gnam). Apparently during most of the year this is their sole food source, although farmers reported significant damage done to various fruit trees when in season, a habit which unfortunately leads to persecution. Three nest sites of *A. a. caribaea* were examined, all of them in the hollow trunks of *Pinus caribaea* trees.

Island residents report that birds start to search for suitable nest sites in February and March (*per* Spicer Wood). Dead trees are given much attention, including exploratory chipping in an effort to break into the hollow centres or to enlarge existing cavities. A clutch of 2–3 is laid in March or April.

Conservation. Isla Guanaja and Barbareta still have adequate parrot habitat due to the low economic value of existing timber. On the larger and more fertile Isla Roatán (c. 130 km^2) there has been considerable development for tourism and a resulting increase in human population, which has led to destruction of forests and so may have affected the parrot population. However, on all these islands the robbing of nests to provide young birds for the pet trade is commonplace and has had a major and far more adverse impact. Indeed, on Isla Guanaja (c. 56 km^2), at least 60 chicks were collected by one individual during the 1987 season (*per* Spicer Wood).

Due to the fact that young birds have little or no yellow on the nape or hindneck, it is fairly easy to recognize the fledglings of these birds. As was the case in Puerto Rico in the 1940s (Snyder *et al.* 1987), it seems that virtually 100% of the nestling parrots are taken for the pet trade despite the fact that these "isleña" birds are legally protected against export under Honduran law. Since this practice frequently involves destroying the nest holes, the populations are likely currently to be made up mainly of mature birds competing for fewer nest sites. Unless action is taken immediately and parrot reserves recognized and protected, their future is greatly imperilled.

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Notes on bird distribution in northeastern Dpto. Santa Cruz, Bolivia, with 15 species new to Bolivia

by John M. Bates, Mary C. Garvin, Donna C. Schmitt & C. Gregory Schmitt

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From 30 June to 12 August 1988, an expedition from the Louisiana State University of Natural Science (LSUMZ), in conjunction with personnel from the Parque Nacional Noel Kempff Mercado, surveyed the avifauna at 3 sites in the lowland rainforest to the west of the Serranía de Huanchaca, Dpto. Santa Cruz, in extreme eastern Bolivia near the Brazilian border. The 3 sites were: (1) **Los Fierros,** 30 km E Aserradero Moira (14°30′S, 61°10′W; elev. 450 m); this area contained broken-canopy, lowland tropical forest averaging 30 m tall, the terrain being flat and the understorey difficult to walk through because of heavy vine tangles. (2) **Arroyo del Encanto,** 30 km E Florida (14°30′S, 60°40′W; elev. 550 m), alongside a rocky stream that flowed off the Serranía 5 km to the east; the forest in this hilly terrain was slightly wetter, with more epiphytic vegetation than the previous site and contained scattered sections of 40 m-tall forest. (3) **The west bank of the Río Paucerna,** 4 km upstream from its confluence with the Río Itenez (13°43′S, 61°11′W; elev. 450 m); the forest here was stunted (5–15 m) with large patches of bamboo along the river.

We observed 15 species not previously recorded in Bolivia and 7 not previously recorded west of the Madiera/Guaporé rivers. Fourteen of these species had previously been recorded as close as Cachoeira Nazaré, Rio Ji-Paraná, Rondonia, Brazil (9°44′S, 61°53′W—D. F. Stotz *et al.* unpubl. data). Prior to our work, we assumed that the western limit of these 'Rondonian' taxa was the Madeira/Guaporé rivers; however, our work suggests that some of them cross the upper Guaporé where its reduced width constitutes less of a barrier to bird dispersal. The barrier to westward dispersal may be the Río Beni or the Río Madre de Dios to the northwest.

The taxonomic affinities of birds in this region are important for understanding the zoogeography of the southern Amazon basin. Although geographic variation in bird populations going from east to west across the Madeira/Guaporé rivers includes several allopatric species-level replacements (*Pipile cujubi* by *P. cumanensis, Pteroglossus bitorquatus* by *P. flavirostris mariae, Selenidera maculirostris* by *S. reinwardtii, Xiphorhynchus elegans* by *X. spixii, Dendrocolaptes concolor* by *D. certhia* and *Pipra nattereri* by *P. coronata*), other species appear to be undifferentiated (*Northarchus tectus, Piculus flavigula* and *Hylophilus semicinereus*). Initial indicators from our inventories suggest that many subspecies in this region were known previously only westward as far as the western bank of the Río Madiera. Other important findings of our survey were the presence of several widespread Amazonian species (*Leucopternis kuhli, Myrmotherula surinamensis, Formicarius colma,* *Ornithion inerme, Chiroxiphia pareola regina*) that were only recently recorded for the first time in Bolivia (in Dpto. Pando—Parker & Remsen 1987).

All specimens are housed at the LSUMZ and the Museo de Historia Natural 'Noel Kempff Mercado', Santa Cruz, Bolivia. In addition to collecting specimens, an effort was made at each locality to tape-record nocturnal birds, tinamous, dawn choruses and mixed-species flocks whenever possible. Analysis of these tapes by T. A. Parker resulted in the addition of 20 species to our list, including the first record for Bolivia of Black-girdled Barbet *Capito dayii*. All sound recordings are housed at the Library of Natural Sounds (LNS), Laboratory of Ornithology, Cornell University. Four locality lists, including the 3 collecting sites and species recorded from a boat on the Guaporé river between the town of Piso Firme and the mouth of the Río Paucerna, are presented in the Appendix. Below, are details on the species new to Bolivia and several other poorly known species.

ZIGZAG HERON *Zebrilus undulatus*

CGS collected a ♀ on 2 Aug at the edge of a shaded water-filled depression 40 m from the banks of the Río Paucerna, only the second specimen record for Bolivia; the first was collected in Dpto. Beni by Pearson (1975).

RED-THROATED PIPING GUAN *Aburria cujubi*

Encountered almost daily at sites 1–2 and fairly common at site 3. The presence of these large gamebirds, along with numbers of Spix's Guan *Penelope jacquaçu* and Spider Monkeys *Ateles paniscus,* suggests that despite much logging in parts of the region, little hunting has occurred.

CRIMSON-BELLIED PARROT *Pyrrhura rhodogaster*

On 14 and 17 Jul 2 specimens were collected by MCG at Arroyo del Encanto. Flocks of 6–15 individuals were seen daily at sites 1–2. In stunted forrest along the Río Paucerna, only the smaller *P. picta* was recorded. Both species were common along Río Ji-Paraná, Rondonia (D. F. Stotz *et al.* unpubl. data). *P. rhodogaster* was previously known only from Brazil between the Madeira and Tapajos rivers (Meyer de Schauensee 1966).

BAND-TAILED NIGHTHAWK *Nyctiprogne leucopyga*

On the evenings of 28, 29 Jul and 12 Aug, up to 6 individuals were seen at dusk flying low over the Río Itenez. Previously known from several localities in adjacent Mato Grosso, Brazil, where it is common along rivers in the pantanal south and west of Cuiabá, Brazil (T. A. Parker).

BROWN JACAMAR *Brachygalba lugubris*

CGS collected 4 along the banks of the Río Paucerna from 20 m up in canopy adjacent to the river. The only other published Bolivian record is also for Santa Cruz (Sclater & Salvin 1879, Remsen & Traylor in press).

PIED PUFFBIRD *Northarchus tectus*

A ♂ and ♀ were collected by JMB and CGS on 30 Jun and 1 Jul from emergent-canopy trees along a road through rainforest at Los Fierros. This is the southernmost record for this widespread species, which is found throughout Amazonia, the Guianas, and southern Middle America (Meyer de Schauensee 1966).

BLACK-GIRDLED BARBET *Capito dayi*

A bird was tape-recorded by JMB in the canopy of tall forest at Arroyo dee Encanto on 14 Jul and was later identified by T. A. Parker as this species. The song consisted of a series of rough, guttural notes ("*groh-groh-groh-groh*") similar to those of *C. aurovirens*. *C. dayi* was previously reported from central Brazil south of the Amazon in a small area at the headwaters of the Madeira and Tapajos rivers (Meyer de Schauensee 1966). It was fairly common along the Río Ji-Paraná (D. F. Stotz *et al.* unpubl. data).

RED-NECKED ARACARI *Pteroglossus bitorquatus*

Fairly common at Arroyo del Encanto, where 8 specimens were collected. An individual was also seen flying over the Río Guaporé on 29 Jul, and another collected at site 3 on 6 Aug. Recorded once before in this area (Cabot *et al.* in press)—the first record for Bolivia.

SPOT-BILLED TOUCANET *Selenidera gouldii*

2♀♀ and a ♂ were collected by JMB and CGS on 13, 17 and 18 Jul in hillside forest at site 2; others were heard there and at site 1, but the species was not recorded every day. The voice (a frog-like croaking "*gyow-gyow-gyow*") is like that of its allospecies *S. reinwardtii*, known from northern Bolivia in Dpto. Pando (Parker & Remsen 1987). Peters (1948) considered *S. gouldii* to be one of 3 subspecies of *S. maculirostris*. Haffer (1974), on the other hand, merged the 2 northern subspecies, *S. m. hellmayri* (Griscom & Greenway 1937) and *S. m. gouldii* to create *S. gouldii*.

YELLOW-THROATED WOODPECKER *Piculus flavigula*

JMB and CGS collected 2 on 30 Jul and 3 Aug (LSUMZ) from low forest adjacent to the Río Paucerna. This species ranges throughout the Amazon basin (Meyer de Schauensee 1966), being most numerous in tall riverine forest and less common in upland terra firme forest (T. A. Parker).

RED-BILLED WOODCREEPER *Hylexetastes perrotii*

One was netted in forest at site 1 on 3 Jul. This species and *Hemitriccus minor* (see below) both occur on both banks of the Amazon: in the north to the Río Negro, and in the south between the Madeira and Tapajos rivers (Meyer de Schauensee 1966), being replaced to the west of the Río Madeira by *H. stresemanni*, known in Bolivia only from Dpto. Pando (Parker & Remsen 1987).

CONCOLOR WOODCREEPER *Dendrocolaptes concolor*

Three were netted at site 1 on 1 Jul. A single specimen also was netted from upland forest along the Río Paucerna on 19 Jul. This member of the *D. certhia* complex was uncommon at the Rondonia site (D. F. Stotz *et al.* unpubl. data) and was known previously only from between the Madeira and Tocantins rivers (Meyer de Schauensee 1966).

ELEGANT WOODCREEPER *Xiphorhynchus elegans*

Frequently netted in tall forest at sites 1 & 2, 7 specimens being obtained from each site. Meyer de Schauensee (1966) reported this species from the Dpto. Beni, though Remsen & Traylor (in press) find no record to report in Bolivia, but suggest that it could occur there between the Beni and Guaporé rivers. Our records are from the eastern edge of that region. The species ranges east to the Río Tapajos in Brazil (Meyer de Schauensee 1966) and was common at the Rondonia site (D. F. Stotz *et al.* unpubl. data).

SATURNINE ANTSHRIKE *Thamnomanes saturninus*

Five specimens were obtained. Encountered uncommonly in forest undergrowth at all 3 sites, and always noted in the forest undergrowth in mixed-species flocks that contained woodcreepers, antwrens and flycatchers. Compared with other Amazonian forests, our study sites contained few such flocks. *T. saturninus* is widespread south of the Amazon basin, from northeastern Peru east to the Río Tocantins (Meyer de Schauensee 1966).

SNETHLAGE'S TODY-TYRANT *Hemitriccus minor*

Common in open forest understory at all 3 sites. Fourteen specimens were obtained. Like *Hylexetastes perrotii* (see above), *Hemitriccus minor* is found north of the Amazon to the west of the Río Negro to southwestern Surinam and south of the Amazon from the Río Juruá to the Río Tocantins; it was known previously from both Rondonia and Mato Grosso in Brazil (Traylor 1979).

FLAME-CROWNED MANAKIN *Heterocercus linteatus*

Nine were netted in or adjacent to 3–4 m-tall bamboo in stunted forest along the Río Paucerna. Considered to be rare at the Rondonia site (T. S. Schulenberg). Previously it was known only from Amazonian Brazil south of the Amazon and from one site in northeastern Peru (Snow 1979).

SNOWY-CAPPED MANAKIN *Pipra nattereri*

Captured fairly frequently in mist nets at site 1 and less frequently at the other 2 sites; 19 specimens were obtained. Previously, the species was known only from between the Madeira and Tapajos rivers (Meyer de Schauensee 1966).

GRAY-CHESTED GREENLET *Hylophilus semicinereus*

CGS collected a ♂ on 31 Jul from river-edge forest on the Río Paucerna, where several individuals were also tape-recorded by JMB. These are the southernmost records of this species, which occurs throughout eastern Amazonia (Meyer de Schauensee 1966).

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Appendix

The following lists are for the 3 sites in the Parque Nacional Noel Kempf Mercado described in the text and species seen from a boat on the Guaporé river. *Column 1*: Los Fierros (14°25′S, 61°10′W); *Column 2*: Arroyo del Encanto (14°30′S, 60°40′W); *Column 3*: Río Paucerna (13°43′S, 61°11′W); *Column 4*: Río Guaporé. Relative abundances were estimated for all species seen at each site; **R** = rare, encountered only once or twice; **U** = uncommon, found in small numbers and not seen every day; **FC** = fairly common, encountered irregularly in numbers or a few individuals seen almost every day; **C** = common, several individuals encountered daily. Average weights (gm) of adult birds (M = Male, F = Female) are given for specimens collected; sample sizes and ranges are given in parentheses, followed by the standard deviation when samples were large enough. Species marked with an asterisk were seen but not collected. Species documented by tape-recording are indicated by a double asterisk.

	Sites				
	1	**2**	**3**	**4**	**Body weights (gm)**
*Rhea americana**			R		
Tinamus tao			R	R	
Crypturellus cinereus	U	R			
Crypturellus soui		FC	FC	FC	
Crypturellus undulatus	U	U	U		
*Crypturellus strigulosus***	R	R	R		M, 390(1)
*Phalacrocorax olivaceus**				C	
*Anhinga anhinga**				C	
Zebrilus undulatus			R		F, 144(1)
Tigrisoma lineatum	R	R	R	FC	
Pilherodius pileatus	R			FC	
Ardea cocoi			U	C	
*Casmerodius albus**			R	C	
*Bubulcus ibis**				U	
Egretta thula			U	C	M, 320(1)
Butorides striatus			U	C	M, 190(1); F, 210(1)
Agamia agami				R	M, 700(1)
*Nycticorax nycticorax**				U	
Cochlearius cochlearius				R	
*Mycteria americana**				R	
*Jabiru mycteria**				R	
*Mesembrinibis cayennensis**			R	R	

	Sites				
	1	2	3	4	**Body weights (gm)**
*Chauna torquata**				FC	
*Cairina moschata**				C	
*Coragyps atratus**	R			C	
*Cathartes aura**	U	U	U	C	
*Cathartes melambrotus**			U	FC	
*Sarcoramphus papa**	R	R			
*Pandion haliaetus**				U	
*Elanoides forticatus**	U				
*Elanus caeruleus**		R			
*Rosthamus sociabilis**				FC	
*Leucopternis kuhli**	R	R			
*Buteogallus urubitinga**			R	U	
*Busarellus nigricollis**				R	
Buteo magnirostris	U	U		FC	F, 312.5(2:310,315)
*Spizaetus tyrannus***				R	
*Daptrius ater**	U	U	U		
Daptrius americanus	FC	R	U		F, 695(1)
*Polyborus plancus**	R			U	
*Herpetotheres cachinnans**				R	
Micrastur gilvicollis			U		M, 186(1); F, 240(1)
Falco rufigularis	U	U	R	U	M, 130(1); F, 200(1)
Penelope jacquacu	FC	FC	U		M, 1400(1); F, 1200(1)
Aburria cujubi	FC	FC	U		
*Crax mitu**			R		
Odontophorus stellatus	U	U	R		
*Aramus guarauna**				FC	
*Aramides cajanea**			R	FC	
*Eurypyga helias**			R		
*Jacana jacana**				U	
Vanellus cayanus			R	U	M, 73(1)
*Charadrius collaris**				R	
*Phaetusa simplex**				C	
*Sterna superciliaris**				FC	
*Rynchops niger**				U	
Columba speciosa	C	C			M, 190(1); F, 280(1)
Columba plumbea	U	U	U	U?	M, 174(1)
Columba subvinacea	FC	FC	FC	FC?	M, 169(3:160–185) ± 14.1
Claravis pretiosa	R	U	FC		M, 63.6(6:60–68) ± 3.4; F, 59.2(8:48–75) ± 8.2
Leptotila rufaxilla	U	U	R		M, 163(1)
Geotrygon violacea	R				
Geotrygon montana	R	U	U		M, 110.6(5:108–125) ± 11.7; F, 94.7(3:83–103) ± 10.4
*Ara ararauna**	FC	FC	FC	FC	
*Ara macao**		R			
*Ara chloroptera**	R	R	R		
*Ara severa**	?	?	?	R	
*Aratinga sp.**	U	U	C	C	
Pyrrhura picta			FC		M, 69(1); F, 85(1)
Pyrrhura rhodogaster	U	FC			M, 102(1); F, 102(1)
Brotogeris versicolurus			C	C	M, 52.5(1); F, 68.3(1)
Brotogeris cyanoptera		U?			
*Pionites leucogaster***			R		
Pionus menstruus	C	C	C	C	M, 254(2:248,260)
Amazona ochrocephala	?	?	U	U	M, 340(1)
*Amazona farinosa**	?	?	U	?	
Piaya cayana	FC	FC	FC		M, 103(2:102,104); F, 119(2:104,134)
*Crotophaga major**				U	
Crotophaga ani	R			C	M, 80(1)
Tapera naevia	R	R			
*Dromococcyx phasianellus***		R			
*Neomorphus geoffreyi**		R			
*Opisthocomus hoazin**				R	
*Lophostrix cristatus***		R	R		
*Otus watsoni***	U	U	R		
*Pulsatrix perspicillata**	R	R	R		
*Ciccaba virgata***			R?		
*Nyctibius grandis***	R	R	R		
*Nyctibius griseus**	R				
*Nyctiprogne leucopyga**				U	
Nyctidromus albicollis			R		F, 50(1)
Nyctiphrynus ocellatus	R	R			M, 35(2:35,35)
Hydropsalis brasiliana	U				M, 58(1)
*Chaetura brachyura**			U		
*Chaetura sp.**		U	FC		
Glaucis hirsuta			U		M, 6.7(3:6–7) ± 0.6; F, 5.8(5:5–8) ± 0.3
Phaethornis hispidus	U	U			M, 5.1(3:5–5.2) ± 0.1; F, 4.5(3:4–5) ± 0.5
Phaethornis (nattereri)?			R		
Phaethornis ruber	C	C	FC		F, 2.2(3:2–2.5) ± 0.3

	Sites				
	1	2	3	4	Body weights (gm)
_Florisuga mellivora_*			R		
Anthracothorax nigricollis			U		M, 7(1); F, 7(1)
Thalurania furcata	U	U	U		M, 4(3:4–4); F, 4.0(3:3.5–4.5) ± 0.5
Hylocharis sapphirina			R		M, 5(1)
Hylocharis cyanus	U	FC	C		M, 3.7(3:3.5–4) ± 0.3; F, 4(1)
_Heliothryx aurita_*	R				
Trogon melanurus	U	U	U		M, 107(2:100,114); F, 118(1)
Trogon viridis	U	U	U		M, 88(1)
Trogon collaris	U	U	U		
Trogon violaceus**	U				
Momotus motmota	R	U	U		M, 107.5(2:104,111); F, 102.5(4:98–110) ± 5.2
_Ceryle torquata_*	R		FC	C	
Chloroceryle amazona			FC	C	F,119.5(2)
Chloroceryle americana			FC	C	M, 29(1); F, 30.2(3)
Chloroceryle inda		R	R		M, 55(1); F, 62.5(2:60,65)
Chloroceryle aenea			U		M, 13(1); F, 14(1)
Notharchus macrorhynchos	R	R			M, 110(1); F, 129(1)
Notharchus tectus	R				M, 40(1); F, 40(1)
Nonnula ruficapilla	R	R	U		M, 15(3:15–15) ± 0.0; F, 15.7(6:14–17) ± 1.3
Monasa nigrifrons			FC		M, 69.6(4:67–74.5) ± 3.4; F, 80(1)
Monasa morphoeus	FC	FC			M, 82(4:80–84) ± 1.6; F, 87.7(5:81–92) ± 8.1
Chelidoptera tenebrosa			FC	FC	M, 37(1); F, 41.5(2:41,42)
Brachygalba lugubris		R			F, 19.3(3:17–23) ± 3.2
Galbula dea**			R		
Galbula ruficauda				U	M, 21.5(2:21,22); F, 22(1)
Capito dayi**		R			
Selenidera gouldi		R	R		M, 172(1); F, 180(2:172,188)
Pteroglossus inscriptus	R	U	R		M, 126(1); F, 122.3(3:116–126) ± 5.5
Pteroglossus bitorquatus		U	R	R	M, 146(6:131–171) ± 16.0; F, 149(3:136–162) ± 13.0
Pteroglossus castanotis		U			M, 268(1)
_Ramphastos vitellinus_*	FC	FC	FC	R	
Ramphastos tucanus	FC	FC	FC		M, 285(2:285,285)
Picumnus aurifrons		U	U		M, 9(2:9,9); F, 9.5(2:9.5–9.5)
Melanerpes cruentatus	FC	FC	FC		M, 65.8(2:65,66.5); F, 60(1)
Veniliornis affinis	U	U	U		M, 37.3(3); F, 40(2)
Piculus flavigula			R		M, 62.3(2:63–71.5)
Piculus chrysochloros	R		R		M, 74(1); F, 84(1)
Celeus flavus**			R		
Celeus torquatus	R		R		M, 131.5(2:128,135)
Campephilus rubricollis	U	U	R		M, 232(1); F, 200(1)
Dendrocincla fuliginosa	FC	FC	FC		M, 34.9(18:30–39) ± 2.8; F, 33.1(7:27–41) ± 5.1
Dendrocincla merula	U	U	U		M, 41.3(6:34.5–45) ± 3.7; F, 37.8(4:29–41) ± 5.6
Glyphorynchus spirurus	U	FC	U		M, 13.6(19:12–17) ± 2.6; F, 13.5(6:12.5–15.5) ± 1.7
Nasica longirostris**			R		
Hylexetastes perrotii	R				F, 118(1)
Dendrocolaptes concolor	U				M, 66(1); F, 71(1)
Xiphorhynchus picus			U		M, 36(2:35–37); F, 34(1)
Xiphorhynchus obsoletus	U	U	R		M, 30(3:29–32) ± 1.7; F, 28.9(4:25–36) ± 4.9
Xiphorhynchus elegans	FC	FC	U		M, 34.5(8:31–38) ± 2.0; F, 30.4(5:29–33) ± 1.7
Xiphorhynchus guttatus	U	U	R		M, 64.3(3:60–69) ± 4.5; F, 63(2:59,67)
Lepidocolaptes albolineatus	U				F, 22.5(2:22,23)
_Synallaxis gujanensis_*			R		
Synallaxis rutilans	U	U	FC		M, 16.8(7:15–19) ± 1.4; F, 15.3(3:15–16) ± 0.6
Philydor pyrrhodes			R		F, 24.5(1)
Automolus ochrolaemus		U	R		M, 32.8(4:30–37) ± 0. 3; F, 30(1)
Xenops minutus	U	U	U		M, 11.9(4:11.5–13) ± 0.8; F, 11.3(2)
Sclerurus rufigularis		R	R		
Taraba major			U		M, 52.3(3:51–54) ± 1.5;
Thamnophilus aethiops	FC?	FC?	U?		M, 23.2(7,22-25.5) ± 3.1; F, 23.1(3:20–26) ± 3.1
Thamnophilus schistaceus	R	U	R		M, 18.3(3:18–19); ± 0.6; F, 17.9(5:17–19.5) ± 1.0
Thamnophilus amazonicus	U	U	U		M, 19.4(7:14–22) ± 3.0; F, 18.1(5:16–19) ± 1.2
Pygiptila stellaris			R		M, 23(1); F, 22(1)
Thamnomanes saturninus	U	U	R		M, 20.0(2:19,21); F, 20(2:18,22)
Myrmotherula brachyura**	R?				
Myrmotherula surinamensis		U			M, 8.3(3:8–9) ± 0.6; F, 8(1)

	Sites				Body weights (gm)
	1	2	3	4	
Myrmotherula hauxwelli		U			M, 10(2:9,11); F, 9.9(4:9.5–11.5) ± 1.1
Myrmotherula leucopthalma	U				M, 12.2(3:10–16) ± 3.3; F, 10.0(2:9,11)
Myrmotherula axillaris		U	U		M, 7.9(4:6.5–8.5) ± 0.9; F, 7.3(4:6.5–8) ± 0.6
Myrmotherula menetriesii	U				M, 9(2:9,9)
Herpsilochmus rufimarginatus**		R			
Cercomacra cinerascens	U	FC	FC		M, 17.2(2:16,18.4)
Cercomacra nigrescens			FC		M, 18.9(6:17–20) ± 1.2; F, 19.8(10:15–25) ± 4.5
Pyroglena leuconota	R	R	R		M, 29.5(2:29,30); F, 28(2:28,28)
Myrmoborus leucophrys			R		M, 19(1)
Hypocnemis cantator	FC	FC	FC		M, 12.8(7:11–15) ± 1.3; F, 12.3(8:11–14) ± 1.2
Hypocnemoides maculicauda	R		U		M, 12.5(3:12–13) ± 0.5; F, 13(2:13,13)
Sclateria naevia		R	U		M, 20(1); F, 20(6:18–20.5) ± 1.3
Myrmeciza hemimelaena	C	C	C		M, 13.8(12:12–15) ± 1.2; F, 13.8(12) ± 0.6
Myrmeciza atrothorax	FC	FC	U		M, 16.5(6:15.5–18) ± 1.5; F, 17.0(6:14.5–18) ± 1.5
Hylophylax punctulata		U	R		M, 12(3:12–12) ± 0.0; F, 13(2:13,13)
Hylophylax poecilonota	FC	FC	FC		M, 17.3(12:15.5–20) ± 1.5; F, 18.5(18:16–21) ± 1.7
Phlegopsis nigromaculata	R	R			M, 46(3:43–48) ± 2.6; F, 44.8(4:42–47) ± 2.2
Formicarius colma			FC?		M, 45(1)
Zimmerius gracilpes*			R		
Tyrannulus elatus			R		
Ornithion inerme*			U		
Camptostoma obsoletum*		U	U		
Sublegatus modestus		R?			M, 11.5(1)
Myiopagus gaimardii	FC	FC	FC		M, 10.6(3:9–12) ± 1.4; F, 11(1)
Myiopagus viridicata	R	R			M, 11.3(2:10.5,12)
Elaenia flavogaster	R	R			M, 24(1); F, 22(1)
Elaenia parvirostris		R			M, 17(1)
Inezia inornata		R			
Inezia subflava			R		
Euscarthmus melacoryphus	U	R			F, 6.5(4:6–7) ± 0.4
Mionectes oleagineus	U	U	R		M, 11.2(8:10–12) ± 0.7; F, 10.8(6:8.5–12) ± 1.5
Leptopogon amaurocephalus	U	U	U		M, 11.5(6:10–13.5) ± 1.5; F, 10.1(4:9–11.5) ± 1.3
Corythopis torquata	U	U	U		M, 14.9(9:13–17.5) ± 1.3; F, 13.7(3:13–15) ± 1.2
Myiornis ecaudatus*		R			
Hemitriccus minor	C	C	C		M, 7.4(12:6.5–8) ± 0.6; F, 7.3(2:6.5,8)
Hemitriccus flammulatus		R	R		M, 9.5(1); F, 9(1)
Hemitriccus striaticollis			R		F, 7(1)
Ramphotrigon ruficauda	R	R	R		F, 18.3(4:17–20) ± 1.5
Tolmomyias assimilis	R	U	R		M, 17.3(2:17,17.5)
Onychorhynchus coronatus	R	R			M, 14(1); F, 11.5(1)
Terenotriccus erythrurus	U	U			M, 7.8(1)
Lathrotriccus euleri	U	U	R		M, 9(1); F, 9.5(2:9,10)
Cnemotriccus fuscatus	U	U	FC		M, 12(7); F, 10.8(10)
Pyrocephalus rubinus	U		U		M, 12.3(2:12,12.5); F, 13(1)
Hirudinea ferruginea		R			M, 28(1)
Attila bolivianus		R			F, 35(1)
Attila spadiceus		U			M, 31(1); F, 35.7(3:35–36) ± 0.6
Casiornis rufa	U	FC	U		M, 20.9(5:19–23.5) ± 1.7; F, 20(2:19,21)
Rhytipterna simplex		R	R		F, 32.5(1)
Laniocera hypopyrrha	R	R	R		M, 43(2:43,43); F, 42(1)
Myiarchus tuberculifer*	U	FC			
Myiarchus swainsoni**		R	R		
Myiarchus tyrannulus	FC	FC	FC		M, 26.7(5:26–28) ± 0.7; F, 27.1(4:25.5–30) ± 2.0
Pitangus lictor*			R	U	
Pitangus sulphuratus	R		U	C	M, 53(1); F, 53.8(2:53,54.5)
Megarhynchus pitangua	FC	FC	U		M, 62.5(3:56–69) ± 6.5; F, 61.2(3:58–67) ± 5.1
Myiozetetes cayanensis			R		M, 30(1)
Myiodynastes maculatus	R	R	R		M, 45.5(1); F, 47(1)
Tyrannus melancholicus*	R		R	R	
Pachyramphus viridis			R		M, 18(1)
Pachyramphus polychopterus		R			
Pachyramphus minor	R	R	R		M, 39.5(2:39,40)
Pachyramphus validus	R				M, 38(1)
Tityra cayana	U	FC	R		M, 78(1); F, 76(1)
Schiffornis turdinus	U	U	U		M, 29.8(10:27–31.5) ± 1.5; F, 29.7(5:27–34.5) ± 2.8
Heterocercus linteatus			U		M, 22(4:21–22.5) ± 0.7; F, 22(4:21–24) ± 1.4

	Sites				
	1	2	3	4	**Body weights (gm)**
Neopelma suphureiventer			U		M, 18(2); F, 13.7(2)
Macheropterus pyrocephalus	FC		C		M, 8.7(15:8–9.5)±0.5; F, 8.7(17:8–10)±0.7
Manacus manacus	R	R	R		F, 14.3(2:13.5,15)
Chiroxiphia pareola	R				F, 20(1)
Pipra nattereri	FC	U	U		M, 7.8(6:7–9)±0.8; F, 8.6(9:8–9.5)±0.6
Pipra fasiicauda	U	C	C		M, 15.7(12:14–17)±0.8; F, 15.7(35:14–19)±1.3
Pipra rubrocapilla	FC	U	U		M, 12.8(11:12–14)±0.7; F, 13.2(13:12–15)±0.8
Lipaugus vociferans	FC	FC	R		M, 86.3(3:85–89)±2.3
Gymnoderus foetidus	R	R	R		F, 230(3:222–238)±8.0
Cephalopterus ornatus	R		R	R	F, 440(1)
Tachycineta albiventer			U	C	M, 17(1); F, 17(1)
*Progne tapera**			C		
Atticora fasciata			FC	U	M, 14(1)
Stegidopteryx ruficollis			FC	C	M, 15.4(4:14.5–17)±1.1
Thryothorus genibarbis	C	C	C		M, 18.8(2:18,19.5); F, 16.5(3:16–17)±0.5
Thryothorus guarayanus			R		M, 13(1); F, 14(1)
Donacobius atrocapillus			R		
Turdus amaurochalinus	C	C	C		
Turdus fumigatus	R	R			M, 64(2:63,65); F, 62.5(2:62,63)
Turdus albicollis	R	R			M, 47(1); F, 43(1)
Ramphocaenus melanurus			R		M, 9.5(1)
Cyclarhis gujanensis	U	U			M, 27(1); F, 28(1)
Vireo olivaceus	C	C	C		M, 13.3(3:12–15)±1.5; F, 12(1)
*Hylophilus thoracicus***			R?		
*Hylophilus hypoxanthus***	FC	FC	FC		
Hylophilus semicinerius			U		M, 13(1)
Ammodramus humeralis	U				M, 16(1)
Sporophila schistacea			C		M, 12.3(4:12–13)±0.5
Sporophila sp.		R			
Arremon taciturnus			R		F, 22(1)
Coryphospingus cucullatus		U			M, 15(1); F, 13.5(1)
Paroaria gularis			R	U	M, 25.5(1)
Saltator maximus			R	FC	M, 43.4(7:39–46)±5.6; F, 39.7(7:30–43.5)±4.6
Cyanocompsa cyanoides	U	R	FC		M, 26.1(4:25–27)±0.8; F, 24.2(4:22–29)±3.3
Schistoclamys melanopsis	R				M, 31(1)
*Thlypopsis sordida**				R	
Hemithraupis guira			FC		M, 12.3(2:12,12.5)
Hemithraupis flavicollis	R	R			M, 13(1); F, 16(1)
Eucometis penicillata	R	FC	U		M, 25.3(5:22.5–27)±1.7; F, 27.8(2:25,30)
Tachyphonus cristatus	R	R	R		M, 18.5(1); F, 20(1)
Tachyphonus luctuosus	R	U			M, 12.5(1)
Habia rubica			U		M, 34.5(2:33,36); F, 35.5(1)
Ramphocoelus carbo	U	U	C		M, 24.5(8:23–27)±1.5; F, 22.6(5:22–23)±0.6
Thraupis sayaca	U	FC	R		M, 29.3(2:27,31.5)
Thraupis palmarum		FC	U		
*Euphonia chlorotica***			R		
Euphonia laniirostris	U	U			M, 16.3(2:16.0,16.5)
Euphonia musica			R		M, 13(1)
Euphonia chrysopasta	U	R			M, 16(3:15–16.5)±0.5; F, 14(1)
Euphonia minuta			U		M, 8.8(3:8–10)±1; F, 10(1)
Euphonia mesochrysa			R		
Euphonia rufiventris		R			M, 15(1)
Tangara mexicana	U	U	R		M, 20(1); F, 19.8(2:19.5,20)
Tangara chilensis	C	FC	R		M, 21.8(3:20–23)±1.6; F, 19.5(2:18,21)
Tangara gyrola	U	U	R		M, 17.8(4:17.5–19)±0.3
Tangara nigrocincta	R		R		M, 15(2:15,15)
Dacnis lineata	R		R		M, 12.5; F, 11(1)
Dacnis cayana	FC	FC	U		M, 14.5(6:14–16)±0.8; F, 16.5(2:15,18)
Chlorophanes spiza	C	FC	U		M, 17.3(3:16–19)±1.6
Cyanerpes cyaneus			R		M, 10(1)
Tersina viridis			U		M, 26(2:26,26); F, 29(1)
*Parula pitiayumi**	FC	U			
*Granatellus pelzelni***			R		
Basileuterus culicivorus		U			M, 11(1)
Phaeothlypis rivularis		U			M, 9.3(2:9.0,9.5)
*Conirostrum speciosum**		R			
Coereba flaveola				FC	M, 9.3(3:9.0-9.5)±0.4; F, 7.9(4:7–8.5)±0.6
*Psarcolius decumanus**				R	
Psarcolius yuracares	U	U	U		M, 430(1)
Cacicus cela			FC	U	M, 102(1)

BOOKS RECEIVED

Vincent, J. 1989. *Web of Experience. An autobiography*. Pp. 365. Photographs, 2 Appendices and Index. Privately printed. Obtainable from the author, Col. Jack Vincent, PO Box 44, Mooi River, 3300 South Africa. Hardback £7.50, soft cover £6.50; surface mail free, airmail £5 extra.

Colonel Jack Vincent, aged 85, Corresponding and later Honorary Life Member of the British Ornithologists' Union, has written an autobiography that is well titled "A Web of Experience" as it covers a varied and outstandingly successful life in many fields. Farming in Sussex and Natal; collecting birds for the British Museum and for Admiral Lynes; running a highly successful clove processing plant in Zanzibar; soldiering in East Africa and the Middle East; building up and developing the Natal game reserves, including pioneering the use of tranquillising darts for capturing white rhino; working worldwide for the ICBP from Switzerland.

The author's interest in birds and all forms of animal life runs through every chapter, but of outstanding interest to ornithologists are those describing his field trips with Admiral Lynes in search of cisticolas required for the proposed Supplement to the 1930 Monograph. Lynes could hardly have found a more perfect assistant—a young man who was equally uncompromising in the pursuit of excellence and who shared his dedication to the task in hand (much of which entailed unpleasant wet season travel on bush roads), characteristics which reappear constantly throughout Jack Vincent's long life. It was a tragic loss to the bird world that Lynes died during the last war before the Supplement could be completed and that his notes, bequeathed to his assistant, were controversially never found.

Older ornithologists will meet many friends and familiar names in these pages; younger readers will have an introduction to a naturalist and colonist of the old school. All will find the book intriguing and packed with amusing and revealing anecdotes. Their enjoyment will be enhanced if they have access to copies of past *Ibis* which contain the scientific papers and maps of the collecting trips or if they can see the immaculate skins and labels in the BMNH.

Giraudoux, P., Degauquier, R., Jones, P. J., Weigel, J. & Isenmann, P. 1988. *Avifaune du Niger: etat des connaissances en 1986*. Pp. 140. *Malimbus* 10(1) June. Price £5 or 60FFr. (Available from Dr H. Q. P. Crick, BTO, Beech Grove, Tring, Herts, HP23 5NR, or Dr G. J. Morel, route de Sallenelles, Bréville-les-Monts, 14860 Ranville, France.)

This special issue of the Journal of the West African Ornithological Society is a comprehensive annotated check-list of the birds of Niger. It is wholly in French, but the birds are also given their English names. A map shows the 9 ecological zones used in the distribution of each species, and these are described in 2 pages. The bibliography contains 52 entries and there is a (essential) gazetteer.

Goodman, S. M. & Meininger, P. L. (Eds) 1989. *The Birds of Egypt*. Pp. xxi + 551. 6 coloured plates; photographs, graphics, breeding and locality maps. Oxford University Press. Hardback. 25 × 19 cm. £70·00.

This expensive, attractively produced and well researched book will undoubtedly be the main source by which to judge the Egyptian avifauna for the next several decades. An explanatory and historical introduction is followed by sections on the geographical environments, conservation, bird hunting and responses to changing habitats. The bulk of the book deals comprehensively and in detail with those species which are considered as having definitely occurred in Egypt, in systematic order. Each species is given its local names in Arabic and transliterated. There are 5 inch square maps of breeding distribution, while the text mainly concentrates on distribution details and breeding data. All ringing data are given when known. There is a long gazetteer, 70 figures/photographs, and 27 pages of references. The colour plates, by Sherif M. Baha el Din, include 41 species in good likenesses. An important addition to Middle East avifaunal literature.

Pennycuick, C. J. 1989. *Bird Flight Performance. A practical calculation manual*. Pp. x + 153. Many figures, several photographs and diagrams, and an IBM-compatible computer disc. Oxford University Press Hardback. 24 × 16 cm. £25.

The author, well known for his erudite studies of bird flight, has produced this specialised manual, written with avoidance of too much jargon, with a view to "apply elementary aeronautics to birds' problems, and at the same time to avoid letting the discussion degenerate into an arcane form of witchcraft, accessible only to high priests with supercomputers". The book is a distillation of ideas and knowledge gained over many pioneering years.

Johnsgard, P. A. 1989. *North American Owls. Biology and natural history.* Pp. 295. 23 coloured plates; 10 watercolours by L. A. Fuertes; line drawings; 52 figures and maps. Smithsonian Institution Press (Eurospan Group of Publishers, Covent Garden, London). Hardback. 26 × 18 cm. £32·50.

The author, already rightly well known for several monographs of North American bird families (including the hummingbirds), has here turned his attention to the owl species which breed north of Mexico. The first part of the book deals with the comparative biology of owls, including evolution, ecology, morphology and physiology, behaviour, reproductive biology, and lastly owls in myth and legend. Part 2 deals with the natural history of 19 species and their distribution. In 3 appendices there are keys to genera and species and to structural variation in the external ears of the group; description of calls, with diagrammatic sonograms; and the origins of the species' scientific and vernacular names. A glossary occupies 15 and the references 19 pages. The watercolours of Fuertes are an additional attraction to a well produced and expertly researched monograph.

Turner, A. & Rose, C. 1989. *A Handbook to the Swallows and Martins of the World.* Pp. viii + 258. 24 colour plates; 74 maps. Christopher Helm. Hardback. 24 × 15 cm. £19·95.

The introductory sections of this monograph (the first review it is extravagantly claimed by the publishers since Bowdler Sharpe & Wyatt's 1885–1894 monograph of the Hirundinidae) cover briefly the morphology and plumage, classification, distribution and migration, food and foraging, behaviour, breeding population and conservation of 74 species. Each is then dealt with in detail under the same headings and additionally under voice, measurements and subspecies. There are 21 pages of references. Chris Rose's illustrations appear accurate and are nicely drawn. The text reveals the considerable research the author must have done on this family both for her doctorate and since.

Bundy, G., Connor, R. J. & Harrison, C. J. O. 1989. *Birds of the Eastern Province of Saudi Arabia.* Pp. 224. Profusely illustrated in colour. Witherby (in association with Saudi Aramco). Hardback. 28 × 22 cm. £35·00.

A sumptuous production with some lovely coloured photographs by G. K. Brown, A. L. Litke and B. Stanaland illustrating well over 300 species confidently recognised as having occurred in this arbitrary division of the Arabian Peninsula; only rare visitors are likely to be added to the list in the future. Introductory sections deal with topography and landscape, climate, vegetation, and the origins of the avifauna of the Eastern Province since the Miocene. Further discussion centres on adaptations of birds to harsh desert and other biotopes, habitats, migration, and on man's impact and predation and the resulting changes. The systematic section follows, dealing mainly with distribution and abundance and with breeding data (if any). There is a full status list of species in one Appendix and of passage migrants in another. The references are under different headings and there is a gazetteer. The coloured illustrations and colours are up to the high standard expected in this type of eye-catching production, but should not be allowed to distract from an informed text.

Dunning, J. S. 1989. *South American Birds. A photographic aid to identification.* Pp. xvi + 351. Over 1400 colour photographs. Harewood Books, PA. 23 × 15 cm. Paperback $35·00, hardback $47·50.

The author sadly died on 31 December 1987 at the age of 81 before he had seen the completion of this book, a culmination of his 25 years photographing wild birds which he had caught and then placed in tents on the spot together with their natural habitat's vegetation, there to photograph them from outside the tent when they had settled down. The book follows up his 1982 *South American Land Birds*, and has again been finalised by Robert S. Ridgely, who has created the distribution maps and compiled identification information for the text. Some 2700 species of inland land and water birds are described. The 1400 photographs illustrate 1352 species and though the photos are only 4 × 4 cm or less, their clarity is surprisingly adequate.

Meyburg, B.-U. & Chancellor, R. D. (Eds.) 1989. *Raptors in the Modern World.* Pp. 611. Line drawings and diagrams. WWGBP. Soft covers. 23 × 16 cm. No price.

These are the Proceedings of the III World Conference on Birds of Prey and Owls held at Eilat, Israel, 22–27 March 1987, attended by nearly 400 participants from 30 countries and 5 continents. The 9 parts cover migration, population biology and breeding conservation, the migration and wintering of rare raptors and rare owls, pollution of their environments, habitat analysis, promotion of legislation and education. The text ends with the resolutions passed at the ICBP meetings held there at the same time.

Stroud, D. A. (Ed.) 1989. *Birds on Coll and Tiree. Status, habitats and conservation.* Pp. 191. Photocopy photographs, drawings. Scottish Ornithologists' Club/Nature Conservancy Council, Edinburgh. Soft covers. £6·50.

A useful descriptive survey of 2 Inner Hebridean Islands covering their habitats available to birds, the agriculture, a study of the distribution of breeding waders, waterfowl and sea birds, as well as wintering coastal waders and wildfowl. The survey is in response to a possibility of the islands being affected by agricultural intensification and drainage as the result of an ECC grant-aided Agricultural Development Programme. Such research epitomises the conflicting choices between improving human living standards and conserving diminishing natural unspoiled habitats.

Nelson, B. 1989. *The Gannet.*
Tate, P. 1989. *The Nightjar.*
Taylor, I. R. 1989. *The Barn Owl.*
Garcia, E. 1989. *The Blackcap and the Garden Warbler.*
Simms, E. 1989. *The Song Thrush.*
All Pp. 24 with many coloured and black-and-white photographs. Shire Publications. £1·95. Soft covers. 15 × 21 cm.

The latest 5 accounts in this excellent series by well-chosen experts. Bryan Nelson has written the authoritative tome on *The Sulidae* (1978); Peter Tate was born within earshot of the East Anglian nightjars; Iain Taylor is involved in a long-term ecological study of Barn Owls in southern Scotland; Ernest Garcia attained his DPhil in studying inter-specific territoriality between Blackcaps and Garden Warblers; and Eric Sims, well known on BBC radio and TV, gained his knowledge of the Song Thrush during 29 years' study of London suburban wildlife. Beautifully illustrated and lucidly written for the intelligent and interested budding ornithologist, these booklets and the others in the series are to be strongly recommended.

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Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin*. They should be typed on one side of the paper, with **treble**-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper*. Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*. Informants of unpublished observations should be cited by initials and name only, e.g. "... of grass (C. Deiter)", but "P. Wee informs me that ...". A limited number of photographic illustrations in black-and-white may be published annually at the Editor's discretion. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

An author wishing to introduce a new name or describe a new form should append **nom., gen.,** sp. or subsp. nov., as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

A contributor is entitled to 10 free offprints of the pages of the *Bulletin* in which his contribution, if one page or more in length, appears. Additional offprints or offprints of contributions of less than one page may be ordered when the manuscript is submitted and will be charged for. Authors may be charged for proof corrections for which they are responsible.

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CONTENTS

Page

CLUB NOTES 185

D. RINKE. The relationships and taxonomy of the Fijian parrot genus *Prosopeia* 185

B. MASSA. Comments on *Passer italiae* (Vieillot 1817) 196

C. J. FEARE & Y. MUNGROO. Notes on the House Crow *Corvus splendens* in Mauritius 199

S. L. OLSON. Notes on some Hawaiian birds from Cook's third voyage 201

D. T. HOLYOAK & M. B. SEDDON. Distributional notes on the birds of Burkina Faso 205

M. LOUETTE. Additions and corrections to the avifauna of Zaire (4) 217

P. A. CLANCEY. The status of *Streptopelia capicola onguati* Macdonald, 1957 225

P. A. CLANCEY. Subspeciation in the Sociable Weaver *Philetairus socius* of the South West Arid Zone of Africa 228

S. LOUSADA. *Amazona auropalliata caribaea:* a new subspecies of parrot from the Bay Islands, Northern Honduras 232

J. M. BATES, MARY C. GARVIN, DONNA C. SCHMITT & C. G. SCHMITT. Notes on bird distribution in northeastern Dpto. Santa Cruz, Bolivia, with 15 species new to Bolivia 236

BOOKS RECEIVED 245

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BULLETIN

of the

BRITISH ORNITHOLOGISTS' CLUB

EDITED BY

Dr J. F. MONK

Volume 109
1989

PREFACE

Volume 109 contains 247 pages, more pages than it has been possible to make available in any previous ordinary year. This is due both to the healthy financial state of the Club and to the wealth of submissions of papers for publication. The editor is glad to acknowledge the standard that authors set themselves prior to sending in a paper, though it isn't everyone that quite succeeds in this attainment. In every case submissions have been welcomed, and it is hoped that, even when rejecting papers, the editor has not been too disagreeable to any author. To quote R. E. Moreau (*E. African Agric. J.* 1947, 12(3): 171–175—and still well worth reading): — 'You are at liberty to ascribe the strength of my prejudices to "senile obstinacy that seems like mellow wisdom to its possessor".'

Some 45% of the papers in this issue were related to systematics and nomenclature involving museum work. Regrettably, no good news has come from the Sub-Dept of Ornithology of the BMNH in 1989. Research is having to defer it seems to spectacle and 'fun education'. The aim of the policy must be, one hopes, to raise public interest and funds, but meanwhile ornithology must wilt and wait. One can but wonder for how long.

As in all previous years, I am pleased to thank referees for their welcome and ready criticisms and advice, John Elgood for his continued compilation of the indices and the Hon Secretary and Hon Treasurer for their attentions to the membership list. Our printers, Henry Ling at The Dorset Press, under the guidance of Mr Frank Hemmings this year, have continued their good work, even earning rarely proffered gratuitous praise from authors for the cleanliness of their proofs, praise which the editor is glad to echo.

J. F. Monk (Editor)

ERRATA

page 5, **Bush Steppe,** line 8: *temminckii* not *temininckii*
page 48, Title: Goodman & Gonzales. For 12 read 13
page 66, penultimate line: *20°40′S* not *28°40′S*
page 67, line 19: *Euphorbia* not *Euforbia*
page 103, line 23: *T. libonyanus* not *libonyana*
page 127, line 27: *T. ochropus* not *T. ocrophus*
page 144, line 19: COELIGENA not COELIGINIA
page 146, Appendix 1, line 12: *chimachima* not *chimchima*
page 146, Appendix 1, line 19: *Actitis* not *Actitus*
page 146, Appendix 1, line 21: *Margarornis* not *Margerornis*
page 146, Appendix 1 1st column, 2nd from foot: *Coeligena* not *Coeliginia*
page 147, 6 lines from foot: *O. leucorhoa* not *O. leucorrhoa*
page 186, line 13: *Psittrichas* not *Psittichras*
page 193, line 29: *vanikorensis* not *vanicorensis*

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Deaths

The Committee very much regrets to report the deaths of the following Members (see Report of the Committee for 1989): H. G. Alexander (Member 1911–1989), Sir Hugh Elliott, Bt., O.B.E., (Member 1953–1989, Committee 1964–1967, Vice-Chairman 1968–1971, Chairman 1971–1974, Editor 1974–1975) and Dr P. G. Morris (Member 1986–1989).

Resignations in respect of 1989

C. J. Fitzpatrick, C. M. Francis, Dr L. Hoffman, N. P. E. Langham, R. B. Ratcliffe, D. W. Simpson, J. B. Smith, I. D. A. Tunks.

Removed from membership under Rule (7)

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ARDSEUNGNURN, SURAPOL. See PARISH, DUNCAN

ASH, J. S., PEARSON, D. J., NIKOLAUS, G. & COLSTON, P. R. The mangrove reed warblers of the Red Sea and Gulf of Aden coasts, with descriptions of a new subspecies of the African Reed Warbler *Acrocephalus baeticatus* 36

BATES, J. M., GARVIN, MARY C., SCHMITT, DONNA C. & SCHMITT, C. G. Notes on bird distribution in northeastern Dpto. Santa Cruz, Bolivia, with 15 species new to Bolivia 236

BOLES, W. E. A new subspecies of the Green-backed Robin *Pachycephalopsis hattamensis,* comprising the first record for Papua New Guinea 119

BOOKS RECEIVED 59, 123,184,245

CALDERON, J. See GONZALES, L. M.

CARSTAIRS, D. N. The status of the Rufous-chested Dotterel *Zonibyx modestus* in the Falkland Islands 166

CHAPPUIS, C., ERARD, C. & MOREL, G. J. Type specimens of *Prinia subflava* (Gmelin) and *Prinia fluviatilis* Chappuis 108

CHEKE, ROBERT A. & WALSH, J. FRANK. Westward range extension into Togo of the Adamawa Turtle Dove *Streptopelia hypopyrrha* 47

CLANCEY, P. A. The status of *Anthus caffer mzimbaensis* Benson, 1955 43

—— The status of *(Cursorius temminckii) damarensis* Reichenow, 1901 51

—— Subspeciation in the Larklike Bunting of the southwestern Afrotropics 130

—— The southern isolate of *Parus rufiventris pallidiventris* Reichenow, 1885 134

—— The status of *Streptopelia capensis onguati* Macdonald, 1957 225

—— Subspeciation in the Sociable Weaver *Philetairus socius* in the South West Arid Zone of Africa 228

CLUB NOTES

Report of the Committee for 1988 and Annual General Meeting Agenda 1

Annual General Meeting 61

Meeting reports 1, 63–64, 125, 185

COLSTON, P. R. See ASH, J. S.

DAVIS, S. E. Migration of the Mississippi Kite *Ictinia mississippiensis* in Bolivia with comments on *Ictinia plumbea* 149

DEAN, W. R. J. A review of the genera *Callandrella, Spizocorys & Eremelauda* (Alaudidae) 95

DELIBES, M. See GONZALES, L. M.

DICKERMAN, R. W. Notes on *Sturnella magna* in South America with a description of a new subspecies 160

—— Notes on the Malachite Kingfisher *Corythornis (Alcedo) cristata* 158

DOWSETT, R. J. The nomenclature of some African barbets of the genus *Tricholaema* 180

ERARD, C. See CHAPPUIS, C.

FEARE, C. J. & MUNGROO, Y. Notes on the House Crow *Corvus splendens* in Mauritius 199

FISHER, CLEM. The discovery of new Australian species by John Gilbert, 1838–1845 64

FRITH, C. B. & HARRISON, C. J. O. An undescribed plumage of the Crested Bird of Paradise *Cnemophilus macgregorii* 137

GARVIN, MARY C. See BATES, J. M.

GONZALES, L. M., HIRALDO, F., DELIBES, M. & CALDERON, J. Zoogeographic support for the Spanish Imperial Eagle as a distinct species 86

GONZALES, P. C. & KENNEDY, R. S. Notes on Philippine Birds, 14. Additional records for the island of Palawan 126

GONZALES, P. C. See GOODMAN, STEVEN M.

GOODMAN, STEVEN M. & GONZALES, PEDRO C. Notes on Philippine Birds, 12[=13]. Seven species new to Catanduanes Island 48

HARRISON, C. J. O. See FRITH, C. B.

HAZEVOET, C. J. Notes on behaviour and breeding of the Razo Lark *Alauda rozea* 82

—— Wing clapping display of Dupont's Lark *Chersophilus duponti* 181

HIGUCHI, H. See KAWAJI, N.

HIRALDO, F. See GONZALES, L. M.

HOLYOAK, D. T. & SEDDON, M. B. Distributional Notes on the birds of Burkina Faso 205
HORI, H. See KAWAJI, N.
IN BRIEF CLANCEY, P. A. The gender of the genus *Batis* Boie, 1933 122
WALTERS, J. Dwarf eggs in the Black-headed Gull *Larus ridibundus* 122
JACKSON, H. D. Weights of birds collected in the Mutare Municipal Area, Zimbabwe 100
KAWAJI, N., HIGUCHI, H. & HORI, H. A new breeding record of the Izu Island Thrush *Turdus celaenops* from the Tokara Islands, southwest Japan 93
KENNEDY, R. S. See GONZALES, P. C.
KIFF, LLOYD F., MANUEL MARIN A., SIBLEY, FRED C., MATHEWS, JUAN CARLO & SCHMITT, N. JOHN. Notes on the nests and eggs of some Ecuadorian birds 25
KIFF, L. F. See MARIN A, M.
KING, BEN. The avian genera *Tesia* and *Urosphena* 162
KING, J. R. Notes on the birds of the Rio Mazan Valley, Azuay Province, Ecuador with special reference to *Leptosittaca branickii, Hapalopsittaca amazonina pyrrhops* and *Metallura baroni* 140
LOUETTE, M. Additions and corrections to the avifauna of Zaire (4) 217
LOUSADA, S. *Amazona auropalliata caribaea*; a new subspecies of parrot from the Bay Islands, Northern Honduras 232
LUIGI, G. See TEIXEIRA, D. M.
MARIN A, M., KIFF, L. F. & PEÑA G, L. Notes on Chilean birds, with descriptions of two new subspecies 66
MARTIN, ROBERT F. See WENDELKEN, PETER W.
MASSA, B. Comments on *Passer italiae* (Vieillot 1817) 196
MATHEWS, JUAN CARLO, See KIFF, LLOYD F.
MLÍKOVSKÝ, JIŘÍ. Note on the osteology and taxonomic position of Salvadori's Duck *Salvadorina waigiuensis* (Aves: Anseridae [Anatidae]) 22
MONROE, B. L. Jr. The correct name of the Terek Sandpiper 106
MOREL, GÉRARD J. Paradoxical Sahel; rich wetlands surrounded with arid bush steppe 4
MOREL, G. J. See CHAPPUIS, C.
MUNGROO, Y. See FEARE, C. J.
NACINOVIC, J. B. See TEIXEIRA, D. M.
NIKOLAUS, G. See ASH, J. S.
OLSON, S. L. Notes on some Hawaiian birds from Cook's third voyage 201
PARISH, DUNCAN & ARDSEUNGNURN, SURAPOL. Swinhoe's Storm Petrel *Oceanodroma monorhis*; a species new for Thailand 9
PARISH, D. & PRENTICE, C. Chestnut-cheeked Starling *Sturnus philippensis*; a first record for mainland South-East Asia 107
PAYNE, R. B. Commentary on the Melba Finches *Pytilia melba* of Djibouti and the requirement of a specimen for taxonomic description 117
PEÑA G. L. See MARIN A, M.
PRENTICE, C. See PARISH, D.
RINKE, D. The relationships and taxonomy of the Fijian parrot genus *Prosopeia* .. 185
RYAN, P. G. Common Nighthawk *Chordeiles minor* and new records of seabirds from Tristan da Cunha and Gough Islands 147
SCHMITT, C. G. See BATES, J. M.
SCHMITT, DONNA C. See BATES, J. M.
SCHMITT, N. JOHN. See KIFF, LLOYD F.
SEDDON, M. B. See HOLYOAK, D. T.
SIBLEY, FRED C. See KIFF, LLOYD F.
SMITH, P. W. & SMITH, S. A. The Bahama Swallow *Tachycineta cyanoviridis*; a summary 170
SMITH, S. A. See SMITH, P. W.
STRONACH, N. Notes on the ecology and nesting of the Spangled Kookaburra *Dacelo tyro* in Southern New Guinea 115
SUTER, WERNER. Feeding ecology of Cormorants wintering in Switzerland 125
TEIXEIRA, D. M., NACINOVIC, J. B. & LUIGI, G. Notes on some birds of northeastern Brazil (4) 152
TYE, ALAN. The systematic position of the Buff-streaked Chat (*Oenanthe/Saxicola bifasciata*) 53
WALSH, J. FRANK See CHEKE, ROBERT A.

WENDELKEN, PETER W. & MARTIN, ROBERT F. Recent data on the distribution of birds in Guatemala, 2 31
WILSON, J. D. Range extensions of some bird species of Cameroon. 110
WOOD, BRIAN. Biometrics, iris and bill colouration, and moult of Somali forest birds 11

INDEX TO SCIENTIFIC NAMES
(Compiled by J. H. Elgood)

All generic and specific names (of birds only) are indexed. New subspecific names are indexed in bold print under generic, specific and subspecific names. Other subspecies of special interest are also included.

Birds listed in the appendix to the paper of J. M. Bates et al. *(pp. 240–244) are not included in this index.*

abdimii, Ciconia 101
aberrans, Cisticola 104
abingoni, Campethera 13, 102
abunda, Streptopelia 226
abyssinica, Coracias 211
— , Hirundo 212
abyssinicus, Bucorvus 6
— , Turtur 210
acanthizoides, Cettia 164
Accipiter badius 13, 15, 101, 209
— minullus 13, 15, 101
— ovampensis 101, 110
— striatus 33, 146
— soloensis 127
— tachiro 13, 101
Acestrura mulsant 146
Acrocephalus agricola 38
— baeticatus 36–40, 42
Acrocephalus baeticatus avicennae *subsp. nov.* 38–40
Acrocephalus cinnamomeus 37–40
— dumetorum 37, 38, 40
— palustris 103
— scirpaceus 36, 37, 40
Actitis hypoleucos 210
— macularia 146
Actophilornis africana 209
acuminatus, Calidris 128
acuta, Anas 8
acuticaudata, Aratinga 154
acutirostris, Calandrella 96, 97, 99
adalberti, Aquila 86–91
adansonii, Coturnix 101
Adelomyia melanogenys 146
adsimilis, Dicrurus 103, 216
adusta, Muscicapa 104, 214
aequatorialis, Apus 102
aeruginosus, Circus 209
aethiopicus, Laniarius 104
— , Threskiornis 7
afer, Euplectes 214
— , Nilaus 104, 213, 219
— , Ptilostomus 216
— ,Sphenoeacus 103
affinis, Apus 102, 211
afra, Pytilia 105
africana, Actophilornis 209
— , Mirafra 102, 182, 183
africanus, Bubo 102
— , Buphagus 215
— , Phalacrocorax 7, 208
Agapornis roseicollis 189
Agelaius phoeniceus 35
Aglaeactis cupripennis 146
agricola, Acrocephalus 38
Agriornis microptera 76
— montana 146
Aix sponsa 173
Alaemon 183
Alauda 82, 83, 96, 183
Alauda arvensis 83
— gulgula 82
— razae 82, 83
alba, Motacilla 8
— , Tyto 211
albicapilla, Cossypha 112
albicollis, Corvus 103
— , Merops 5
— , Scelorchilus 76
albifrons, Amblyospiza 104
albigularis, Hirundo 112
— , Sclerurus 28
albilinea, Tachycineta 34
albinucha, Xenopsaris 156
albirostris, Bubalornis 215
albiventris, Halcyon 13, 16, 101
albogularis, Francolinus 209
albonotatus, Buteo 33
— , Trochocercus 104
alboterminatus, Tockus 102
albus, Casmerodius 32
— , Corvus 103, 216
Alcedo cristata 102, 158
Alisterus 186, 187, 188
Alisterus amboinensis 188
alleni, Porphyrio 209
— , Porphyrula 101
alopex, Falco 111, 209
alpina, Muscisaxicola 146
amabilis, Charmosyna 193
Amazilia violiceps 31, 34
Amazona auropalliata 233–235
Amazona auropalliata caribaea *subsp. nov.* 233
amazonina, Hapalopsittaca 142–143, 146
Amblyospiza albifrons 104
amboinensis, Alisterus 188
americana, Parula 35
amethystina, Nectarinia 13, 104, 221–223
Ampelion rubrocristatus 146
Anairetes parulus 77, 146
— reguloides 77
analis, Catamenia 146
Anaplectes rubriceps 105

Anas acuta 8
— flavirostris 143, 146
— georgica 143
— querquedula 8
— smithii 100
Anastomus lamelligerus 101
andicola, Leptasthenura 146
Andigena hypoglauca 145, 146
Andropadus importunus 13, 17, 103
— milanjensis 103
angolensis, Uraeginthus 105
angulata, Gallinula 101, 209
Anhinga melanogaster 103
— rufa 7
Anisognathus igniventris 146
Anthracothorax prevostii 33
Anthreptes collaris 13, 19, 104
— platurus 214
Anthus bogotensis 146
— caffer 43–47
— campestris 6
— lineiventris 104
— mzimbaensis 43–46
— similis 104
— trivialis 104
— vaalensis 104
Anthoscopus caroli 103
Apalis chirindensis 103
— flavida 103
— jacksoni 220
— melanocephala 13
— thoracica 103
Apaloderma narina 13, 15
apiaster, Merops 211
apiata, Mirafra 182
apivorus, Pernis 208
Aplopelia larvata 102
Aprosmictus 187, 188
Apus aequatorialis 102
— affinis 102, 211
— caffer 211
Aprosmictus jonquillaceus 188
aquatica, Muscicapa 214
Aquila adalberti 86–91
— fulvus 89
— heliaca 86–90
— imperialis 87–89
— melanaetus 87
— rapax 110
— verreauxii 101
Ara 187
Aramides mangle 153
Aratinga acuticaudata 154
arborea, Lulula 85
Ardea cinerea 208
— herodias 32
— melanocephala 208
— purpurea 208
ardens, Euplectes 105
Ardeola ralloides 7, 208
ardosiaceus, Falco 217, 218
aridus, Cursorius temminckii *subsp. nov.* 52
armata, Merganetta 146
arnaudi, Pseudonigrita 228
arvensis, Alauda 83
Asio flammeus 128
Asthenes flammulatus 146
Asthenes humicola goodalli *subsp. nov.* 74, 75
— humicola 74, 75
— polysticta 74, 75
astrild, Estrilda 105
aterrimus, Phoeniculus 212
Atlapetes rufinucha 146
— torquatus 146
atra, Pyriglena 155
atricapilla, Sylvia 6
atriceps, Phrygilus 78, 80
— , Phalacrocorax 69
Atrichornis clamosus 65
atrocaudata, Terpsiphone 129
atrogularis, Prosopeia 186, 187, 188
audeberti, Pachycoccyx 218
auguralis, Buteo 209
aura, Cathartes 146
auratus, Oriolus 103, 216
auritus, Nettapus 208
auropalliata carabaea, Amazona *subsp. nov.* 232–235
australis, Hyliota 103
— , Tchagra 104
Automolus 155
Automolus ochrolaemus 28
Aviceda cuculoides 101
avicenniae, Acrocephalus baeticatus *subsp. nov.* 38–40
avosetta, Recurvirostra 210
azarae, Synallaxis 146
azureocapilla, Myiagara 193

badius, Accipter 13, 15, 101, 209
baeticatus avicenniae, Acrocephalus *subsp. nov.* 38–40, 42
bairdi, Oreomystis 202
bairdii, Calidris 146
barbarus, Laniarius 212
barbatus, Pycnonotus 103, 212
baroni, Metallura 143, 144, 146
Basileuterus coronatus 146
— culicivorus 154
— nigrocristatus 146
batesi, Caprimulgus 219
Batis 122
Batis capensis 104, 122
— molitor 104
— minima 122
— minor 122
— occulta 122
— poensis 122
— senegalensis 122, 214
bengalus, Uraeginthus 215
benghalensis, Rostratula 101
biarmicus, Falco 209
bicalcaratus, Francolinus 209
bicolor, Ploceus 13, 19, 20
— , Spermestes 105
— , Tachycineta 34, 171, 176

bifasciata, Oenanthe 53, 55
— , Saxicola 53, 55, 58
bilineatus, Pogoniulus 102
blanchoti, Malaconotus 104, 213
boehmi, Sarothrura 101
bogotensis, Anthus 146
boissonneautii, Pseudocolaptes 146
bonariensis, Molothrus 78, 79
bonelli, Phylloscopus 6
borealis, Contopus 34
borin, Sylvia 103
Bostrychia hagedash 208
bottae, Oenanthe 213
brachydactyla, Calandrella 96, 97, 98
brachyura, Camaroptera 13, 17, 20, 103
— , Sylvietta 213
Bradornis pallidus 213, 214
Bradypterus 162, 163
branickii, Leptosittaca 140–142, 146
brasilianum, Glaucidium 33, 69–71, 72
brevicaudata, Camaroptera 213
brunnifrons, Cettia 164
Bubalornis albirostris 215
Bubo africanus 102
— virginianus 146
Bubulcus ibis 208
Bucco leucomelas 181
Bucorvus abyssinicus 6
Buphagus africanus 215
Burhinus capensis 210
— senegalensis 210
Butastur rufipennis 209
Buteo albonotatus 33
— auguralis 209
— poecilochrous 29
— polyosoma 146
Butorides striatus 208

cabanisi, Emberiza 105
— , pseudonigrita 228
caerulea, Egretta 33
caerulescens, Estrilda 114, 215
— , Muscicapa 13, 104
caeruleus, Elanus 33, 40, 208
caffer, Anthus 43, 47
— , Apus 211
caffra, Cossypha 103
Calandrella 82, 95, 96, 97, 98
Calandrella acutirostris 96, 97, 99
— brachydactyla 96, 97, 98
— cinerea 96, 97, 99
— conirostris 96, 97
— dunni 96, 97
— fringillaris 96, 97
— obbiensis 96, 97
— personata 96, 97
— raytal 96, 97, 99
— rufescens 83, 85, 96, 97, 99
— somalica 96, 97, 99
— starki 96, 97
Calidris 106
— acuminatus 128
— bairdii 146
— canutus 106
Calidris ferruginea 120
— fuscicollis 148, 168
— minuta 138
— temminckii 127
Callichelidon 170
calva, Treron 102
Camaroptera brachyura 13, 17, 20, 103
— brevicaudata 213
— lopesi 113
— stierlingi 103
camelus, Struthio 6
Campephaga flava 102
campestris, Anthus 6
Campethera abingoni 13, 102
— punctuligera 212
Campylopterus falcatus 146
canorus, Cuculus 6
cantans, Cisticola 103, 213
canutus, Calidris 106
capense, Glaucidium 13, 15
capensis, Batis 104, 122
— , Burhinus 104, 122
— , Emberiza 105
— , Euplectes 105
— , Muscicapa 122
— , Oena 210
— , Smithornis 102
— , Tyto 128
— , Zonotrichia 146
capicola, Streptoplia 225–227
Caprimulgus batesi 219
— climacurus 211
— europaeus 102
— fossii 102
— longirostris 26, 71, 46
— pectoralis 102
— tristigma 102
caprius, Chrysococcyx 102
carbo, Phalacrocorax 101, 125
caribaea, Amazona auropalliata *subsp. nov.* 232
caroli, Anthoscopus 103
carunculata, Foulehaio 193
carunculatus, Phalcobaenus 146
Casmerodius albus 32
castaneocoronata, Tesia 164, 165
Catamblyrynchus diadema 146
Catamenia amalis 146
— homochroa 146
— inornata 146
Cathartes aura 146
caudatus, Lamprotornis 215
celaenops, Turdus 93–95
Celeus torquatus 154
Centropus grillii 211
— senegalensis 102, 211
— superciliosus 102
Ceryle rudis 211
Cercomela 53, 58
Cercomela familiaris 103
Cercotrichas galactotes 213
— quadrivirgata 13, 17, 20
Certhia coccinea 203–204
— pacifica 204

Certhilauda 182
Ceryle rudis 211
cetti, Cettia 164
Cettia 162–166
Cettia acanthizoides 164
— brunnifrons 164
— cetti 164
— diphone 164
— flavolivacea 164
— fortipes 164
— major 164
— pallidipes 164, 168
— vulcania 164
Chalcopsitta 197
chalcopterus, Cursorius 5, 210
— , Rhinoptilus 101
chalcospilos, Turtur 13, 15, 102
Chalcostigma stanleyi 146
chalcurus, Lamprotornis 216
chalybeata, Vidua 215
chalybeus, Lamprotornis 216
chapmani, Oceanodroma 9, 10
Charadrius falklandicus 168
— hiaticula 126, 127
— pecuarius 100
— tricollaris 101
Charmosyna 187
Charmosyna amabilis 193
Chasiempis sandwichensis 202
chelicuti, Halcyon 102, 211
Chersomanes 183
Chersophilus 182, 183
Chersophilus duponti 181–183
chimachima, Milvago 144, 146
chinensis, Streptopelia 49
chiniana, Cisticola 103
chirindensis, Apalis 103
Chlidonias leucopterus 102
Chloebia gouldiae 65
chloris, Halcyon 193
— , Nicator 13, 17
Chlorocichla flaviventris 13, 103
chlororhynchos, Diomedea 153
Chordeiles minor 147, 148
Chrysococcyx caprius 102
— klaas 102
chrysoconus, Pogoniulus 102, 212
Chrysoenas 188
chrysolaus, Turdus 95
chrysopeplus, Pheucticus 146
Chubbia jamesoni 146
Ciccaba woodfordi 13
Ciconia abdimii 101
— ciconia 7
Cinclodes fuscus 146
Cinclus leucocphalus 146
cinerea, Ardea 208
— , Calandrella 96, 97, 99
— , Scolopax 106
— , Serpophaga 146
— , Tringa 106
cinereum, Conirostrum 146
cinereus, Circus 68
— , Xenus 106
cinnamomea, Pyrrhomyias 146
cinnamomeus, Acrocephalus 37–40
cinnamomeiventris, Thamnolaea 103
Cinnyricinclus leucogaster 104, 215
Circaetus gallicus 209
Circus aeruginosus 209
— cinereus 68
Ciridops 204
Cisticola aberrans 104
— cantans 103, 213
— chiniana 103
— erythrops 104
— fulvicapilla 104
— galactotes 213
— juncidis 213
— lais 103
— natalensis 104, 213
— rufa 213
Cistothorus platensis 146
clamosus, Atrichornis 65
Climacteris picumnus 65
climacurus, Caprimulgus 211
Cnemophilus 138
Cnemophilus macgregorii 137–139
coccinea, Certhia 203–204
— , Vestiaria 202–203
Coeligena iris 144, 146
coerulescens, Saltator 35
Colibri coruscans 27, 72, 146
Colius indicus 102
— striatus 102
collaris, Anthreptes 13, 19, 104
— , Lanius 104
collurio, Lanius 104
collybita, Phylloscopus 6
Colorhamphus parvirostris 77
Columba fasciata 111
— guinea 210
— livia 210
— unicincta 111
— vitiensis 128
columbarius, Falco 146
communis, Sylvia 6
conirostris, Calandrella 96, 97
— , Spizocorys 97, 99
Conirostrum cinereum 146
— sitticolor 146
Contopus borealis 34
Coracias abyssinica 211
— garrulus 102
— naevia 102, 211
Coracopsis 186
cornutus, Eunymphicus 187, 194
coronatus, Basileuterus 146
coruscans, Colibri 27, 72, 146
corvina, Corvinella 212
Corvinella corvina 212
Corvus albicollis 103
— albus 103, 216
— splendens 199–200
Corythornis cristata 158–159, 211
Corythornis cristata stuartkeithi *subsp. nov.* 159
Cossypha albicapilla 112

Cossypha caffra 103
— heuglini 13, 17, 103
— humeralis 103
— natalensis 13, 20, 103
— niveicapilla 213
— roberti 112
Cossypha spp. 101
Coturnix adansonii 101
— coturnix 6
— delegorguei 101
Crex egregia 101
Crinifer piscator 210
cristata, Alcedo 102
cristata stuartkeithi, Corythornis *subsp. nov.* 158–159, 211
Cryptospiza reichenovii 105
cryptoxanthus, Myiophobus 29
cubla, Dryoscopus 13, 18, 104
cucculata, Lonchura 215
cucullatus, Ploceus 105, 214
— , Spermestes 105
cuculoides, Aviceda 101
Cuculus canorus 6
— gularis 102, 211
— solitarius 102
culicivorus, Basileuterus 154
cupripennis, Agleactis 146
Cursorius chalcopterus 5, 210
— damarensis 51–52
— temminckii 5, 51–52, 210
Cursorius temminckii aridus *subsp. nov.* 52
cyanea, Diglossa 146
cyaneoviridis, Tachycineta 170–180
cyaniventer, Tesia 164, 165
cyanoleuca, Notiochelidon 146
Cyanolyca turcosa 146
cyanomelas, Trochocercus 13, 18
cyanopterus, Pterophanes 146
Cyanoramphus 186, 187, 188, 194
Cyornis herioti 50
Cypseloides rutilus 26, 27
Cypsiurus parvus 102, 211

Dacelo gaudichaud 116
— leachii 116
— tyro 115–117
damarensis, Cursorius 51–52
— , Streptopelia 225–227
dauma, Zoothera 50
delegorguei, Coturnix 101
Delichon urbica 102, 212
Dendrocygna viduata 208
Dendroica striata 106
Dendronanthus indicus 129
Dendropicos goertae 212
denhami, Otis 5
— , Neotis 209
dentata, Petronia 215
deserti, Oenanthe 54, 55
diadema, Catamblyrynchus 146
dickinsoni, Falco 217, 218
Dicrurus adsimilis 103, 216
— ludwigii 13, 17
Diglossa cyanea 146
— humeralis 146
— sittoides 146
Diomedea chlororhynchos 153
diphone, Cettia 164
dissimilis, Turdus 95
Dives, dives 35
domesticus, Passer 104, 196–198
Drepanis pacifica 204
Drymocichla superciliosa 109
Drymophila ferruginea 155
— squamata 155
Dryoscopus cubla 13, 18, 104
— gambensis 212
dubius, Lybius 212
Dubusia taeniata 146
dumetaria, Upucerthia 73
dumetorum, Acrocephalus 37, 38, 40
dunni, Calandrella 96, 97
— , Eremalauda 97, 100
duponti, Chersophilus 181–183

ecaudatus, Terathopius 209
Eclectus 187
edolioides, Melaenornis 214
egregia, Crex 101
Egretta caerulea 33
— garzetta 208
— thula 33, 67
Elanoides forficatus 146
Elanus caeruleus 33, 49, 208
elegans, Platycercus 187
Emberiza cabanisi 105
— capensis 108
— flaviventris 105, 214
— forbesi 214
— hortulana 6
— impetuana 130–134
Emberiza impetuana eremica *subsp. nov.* 133
Emberiza tahapisi 105, 214
Ensifera ensifera 146
Eos 187
epops, Upupa 6, 212
Eranornis longicauda 214
Eremalauda 95, 96, 97, 98
Eremalauda dunni 97, 98, 100
— starki 97, 98, 100
eremica, Emberiza impetuana *subsp. nov.* 132–134
Eremomela 5
Eremomela icteropygialis 103, 113
— pusilla 213
— scotops 103
Eremopterix leucotis 5, 212
Eriocnemis luciani 146
— vestitus 146
Erythrocercus holochlorus 13, 18
erythrops, Cisticola 104
— Quelea 215
erythroptera, Heliolais 104, 113
Erythropygia leucophrys 103
— quadrivirgata 103
erythropygius, Myiotheretes 146

erythrorhynchus, Tockus 212
Estrilda astrild 105
— caerulescens 114, 215
— perreini 105
— quartinia 105
— troglodytes 215
euchrysea, Kalochelidon 176
— , Tachycineta 176
Eumomota superciliosa 34
Eunymphicus 187, 888, 194
Eunymphicus cornutus 187, 194
— euveaensis 194
Euphonia minuta 35
Euplectes afer 214
— ardens 105
— capensis 105
— franciscanus 215
— hordaceus 105, 215
— orix 105
Eupodotis ruficrista 209
europaeus, Caprimulgus 102
Eurystomus glaucurus 212
euryzonoides, Rallina 49
euveaensis, Eunymphicus 194
everetti, Tesia 164, 165
exilis, Laterallus 153
exustus, Pterocles 5

falcatus, Campylopterus 146
falcirostris, Xiphocolaptes 154
Falco alopex 111, 209
— ardosiaceus 217, 218
— biarmicus 209
— columbarius 146
— dickinsoni 217, 218
— imperialis 88
— naumanni 111
— peregrinus 144, 146
— sparverius 146
— tinnunculus 101, 209, 218
falklandicus, Charadrius 168
familiaris, Cercomela 103
famosa, Nectarinia 104
fasciata, Columba 141, 146
fasciata harrisoni, Geositta *subsp. nov.* 73, 74
fasciata, Rallina 127
fasciatus, Laterallus 153
— , Myiophobus 29, 77
ferruginea, Calidris 128
— , Drymophila 155
ferrugineus, Laniarius 13, 101
flammeus, Asio 128
flammulata, Asthenes 146
flammulatus, Thripadectes 146
flava, Campephaga 102
— , Motacilla 8, 212
flavibuccale, Tricholaema 181
flavida, Apalis 103
flavipunctata, Tricholaema 180
flavirostris, Anas 143, 146
flaviventris, Chlorocichla 13, 103
— , Emberiza 105, 214
flavolivacea, Cettia 164
flavostriatus, Phyllastrephus 103
fluviatilis, Prinia 108–109
forbesi, Emberiza 214
forficatus, Elanoides 146
formicivora, Myrmecocichla 53
fortipes, Cettia 164
fossii, Caprimulgus 102
Foulehaio 193
Foulehaio carunculatus 193
— provocator 193
franciscanus, Euplectes 215
— , Xiphocolaptes 154
Francolinus albogularis 209
— bicalcaratus 209
fraseri, Oreomanes 145, 146
fremantlii, Pseudalaemon 82
fringillaris, Calandrella 96, 97
— , Spizocorys 97, 99
fringilloides, Spermestes 105
frontalis, Ochthoeca 146
— , Sporopipes 215
fuliginosa, Nectarinia 221–224
fulvicapilla, Cisticola 104
fulvus, Aquila 89
fumicolor, Ochthoeca 28, 29, 146
fumigatus, Myiotheretes 146
fuscater, Turdus 30, 146
fuscicollis, Calidris 148, 168
fuscus, Cinclodes 146

gabar, Micronisus 209, 217
gaimardi, Phalacrocorax 69
galactotes, Cercotrichas 213
Galerida 82, 183
Galerida cristata 85
— modesta 212
gallicus, Circaetus 209
Gallinago media 101
Gallinula angulata 101, 209
gambagae, Muscicapa 214
gambensis, Dryoscopus 212
garrulus, Coracias 102
garzetta, Egretta 208
gayi, Phrygilus 78, 80, 81
georgica, Anas 143
Geositta fasciata harrisoni *subsp. nov.* 73, 74
Geositta rufipennis 73
Geotrygon saphirina 26
Geranoaetus melanoleucus 146
gigas, Patagona 144, 146
Glaucidium 71
Glaucidium brasilianum 33, 69–71, 72
— capense 13, 15
— jardinii 146
— nanum 69–71, 72
— perlatum 211
glaucurus, Eurystomus 212
goertae, Dendropicos 212
goodalli, Asthenes humicola *subsp. nov.* 74, 75
gouldiae, Chloebia 105
Grallaria quitensis 146
— ruficapilla 146

Grallaria rufula 146
— squamigera 146
granatinus, Uraeginthus 105
grillii, Centropus 211
griseiventris, Parus 135, 137
griseopyga, Hirundo 113
— , Pseudohirundo 102
griseus, Passer 215
gryphus, Vultur 143, 146
guatemalensis, Sclerurus 28
guinea, Columba 210
gularis, Cuculus 102, 211
— , Serinus 101, 105
— , Synallaxis 146
Gymnomyza viridis 193

hagedash, Bostrychia 208
Halcyon albiventris 13, 16, 102
— chelicuti 102, 211
— chloris 193
— leucocephala 102, 111, 211
— senegalensis 102, 211
— senegaloides 13
Hapalopsittaca amazonina 142–143, 146
harrisoni, Geositta fasciata *subsp. nov.* 73
hattamensis lecroyi, Pachycephalopsis *subsp. nov.* 119–121
heliaca, Aquila 86–98
Heliangelus viola 144, 146
Heliolais erythroptera 104, 113
Hemispingus superciliaris 146
— verticalis 145, 146
Helmitheros vermivorus 35
herioti, Cyornis 50
— , Niltava 50
herodias, Ardea 32
Herpsilochmus pileatus 154
heuglini, Cossypha 13, 17, 103
hiaticula, Charadrius 126, 127
Himantopus himantopus 209
Hippolais pallida 40, 213
— polyglotta 213
hirsuta, Tricholaema 180
hirsutus, Lybius 181
hirundinacea, Sterna 69
hirundineus, Merops 102
Hirundo abyssinica 212
— albigularis 112
— griseopyga 112
— lucida 212
— pyrrhonota 35
— rustica 11, 102, 212
— semirufa 212
— senegalensis 212
hispaniolensis, Passer 196–198
Histurgops ruficauda 228
holochlorus, Erythrocercus 13, 18
homochroa, Catamenia 146
— Oceanodroma 10
hordaceus, Euplectes 105, 215
hortulana, Emberiza 6
humeralis, Cossypha 103
— , Diglossa 146
humicola goodalli, Asthenes *subsp. nov.* 74, 75
humicola, Thripophaga 75
Hyliota australis 103
— violacea 113
Hylophilus poicilotis 154
Hypargos niveoguttatus 105
hypoglauca, Andigena 145, 146
hypoleucos, Actitis 210
hypophyrrha, Streptopelia 47–48

ibadanensis, Malimbus 125
ibis, Bubulcus 208
Ibis ibis 7
icteropygialis, Eremomela 103, 113
Ictinia mississippiensis 149–151
— plumbea 149–151
Ictinia *spp* 150–151
igniventris, Anisognathus 146
imperialis, Aquila 87–89
— , Falco 88
impetuana eremica, Emberiza *subsp. nov.* 130–134
importunus, Andropadus 13, 17, 103
Indicator indicator 102, 212
— minor 102
— variegatus 13, 16, 20, 102
indicus, Colius 102
— , Dendronanthus 129
inerme, Ornithion 156
inornata, Catamenia 146
— , Pachycephala 65
iris, Coeligena 144, 146
Ispidina picta 13, 16, 102
italiae, Passer 196–198
Ixobrychus minutus 208
— sinensis 49

jacksoni, Apalis 220
jacobinus, Oxylophus 210
jacosus, Pycnonotus 200
jamaicensis, Oxyura 146
jamesoni, Chubbia 146
jardineii, Turdoides 103
jardinii, Glaucidium 146
juncidis, Cisticola 213
Jynx torquilla 6

Kalochelidon euchrysea 176
Kaupifalco monogrammica 101
kilimensis, Nectarinia 104
klass, Chrysococcyx 102
Knipolegus nigerrimus 156
koroensis, Prosopeia 187, 191
krameri, Psittacula 5, 210

lacrymosa, Tricholaema 187
Lafresnaya lafresnayi 144, 146
lafresnayi, Lafresnaya 144, 146
Lagonosticta rhodopareia 105
— rubricata 105
— senegala 105, 215
— vinacea 215
lais, Cisticola 103

lamelligerus, Anastomus 101
Lamprolia victoriae 188
Lamprotornis caudatus 215
— chalcurus 216
— chalybeus 216
— purpureus 216
Laniarius aethiopicus 104
— ferrugineus 104
Lanius barbarus 212
— collaris 104
— collurio 104
— senator 6, 212
Larus maculipennis 69
— ridibundus 122–123
— serranus 146
larvata, Aplopelia 102
larvatus, Oriolus 103
latebricola, Scytalopus 146
Laterallus exilis 153
— fasciatus 153
— levraudi 153
— melanophaius 153
— viridis 153
layardi, Ptilinopus 193
Layardiella 186
Layardiella tabuensis 186
lecroyae, Pachycephalopsis hattamensis *subsp. nov.* 120
Leipoa ocellata 64
Leptasthenura andicola 146
Leptotila verrauxi 146
Leptosittaca branickii 140–142, 146
Lesbia nuna 146
— victoriae 27, 28, 146
leucocephala, Halcyon 102, 111, 211
leucocephalus, Cinclus 146
leucogaster, Cinnyricinclus 104, 215
leucomelaina, Tricholaema 181
leucomelas, Bucco 181
— , Parus 135
Leucophaeus scoresbii 69
leucophrys, Erythropygia 103
— , Mecocerculus 146
— , Sylvietta 220
leucopleurus, Oreotrochilus 72
leucoptera, Pyriglena 155
leucopterus, Chlidonias 102
leucopygius, Serinus 214
leucorhoa, Oceanodroma 9, 10, 147
leucotis, Eremopteryx 5, 212
— , Galbalrhynchus 28
— , Otis 211
levaillantii, Oxylophus 211
levraudi, Laterallus 153
libonyanus, Turdus 103
Limosa limosa 8
lineiventris, Anthus 104
livia, Columba 210
Loboparadisea 139
Loboparadisea sericea 139
Lonchura cucullata 21
longicauda, Eranornis 214
longicaudus, Stercorarius 148
longipennis, Macrodipteryx 211
longirostris, Camprimulgus 26, 71, 146
lopesi, Camaroptera 113
Loria 138, 139
Loria loria 139
Lorius 187
luciani, Eriocnemis 146
lucida, Hirundo 212
ludoviciana, Piranga 35
ludwigii, Dicrurus 13, 17
Lulula arborea 85
luteola, Sicalis 35
luteolus, Ploceus 214
luteovirens, Ptilinopus 193
Lybius dubius 212
— hirsutus 181
— torquatus 102
— vieilloti 212

Macgregorii 138
macgregorii, Cnemophilus 137–139
Macrodipteryx longipennis 211
— vexillaria 102
macroura, Vidua 105, 215
macularia, Actitis 146
maculata, Muscicapa 202
— , Terenura 155
maculipennis, Larus 69
magellanicus, Phalacrocorax 69
— , Scytalopus 146
— , Spinus 146
magna quinta, Sturnella *subsp. nov.* 160–161
major, Cettia 164
Malaconotus blanchoti 104, 213
Malimbus ibadanensis 125
Malurus pulcherrimus 65
Mandingoa nitidula 105
mangle, Aramides 153
manoensis, Nectarinia 104
Margarornis squamiger 146
markhami, Oceanodroma 9
matsudairae, Oceanodroma 9
Mecocerculus leucophrys 146
— stictopterus 146
media, Gallinago 101
megalotis, Otus 50
Megapodius reinwarti 65
Melaenornis edoliodes 214
— pallidus 104
melanaetus, Aquila 87
melania, Oceanodroma 10
melanocephala, Apalis 13
— , Ardea 208
melanocephalus, Myioborus 146
melanogaster, Anhinga 208
melanogenys, Adelomyia 146
melanoleucus, Geranoaetus 146
melanophaius, Laterallus 153
melanorhynchus, Thripadectes 28
melanotos, Sarkidiornis 208
melba, Pytilia 105, 117–119, 215
meleagris, Numida 5, 101
Melierax metabates 209
mennelli, Spermestes 105

Merganetta armata 146
Merops albicollis 5
— apiaster 211
— hirundineus 102
— nubicus 211
— orientalis 211
— pusillus 102
metabates, Melierax 209
Metallura baroni 143, 144, 146
— oenocauda 143
— tyrianthina 27, 144, 146
— williami 144, 146
Mexaxenops parnaguae 154, 155
Micronisus gabar 209, 217
microptera, Agriornis 76
microrynchum, Rhamphomicron 146
migrans, Milvus 101, 209, 217
milanjensis, Andropadus 103
Milvago chimachima 144, 146
Milvus migrans 101, 209, 217
minor, Batis 122
— , Chordeiles 147
— , Indicator 102
— , Phoenicopterus 101
minullus, Accipiter 13, 15, 101
minuta, Euphonia 35
minutus, Ixobrychus 208
Mirafra 182, 183
Mirafra africana 102, 182, 183
— apiata 182
— collaris 182
— rufocinnamomea 102, 182, 212
mississippiensis, Ictinia 149–151
modesta, Galerida 212
modestus, Zonibyx 166–169
moesta, Oenanthe 54, 55
molitor, Batis 104, 122
Molothrus bonariensis 78, 79
monachus, Necrosyrtes 209
monogrammicus, Kaupifalco 101
monorchis, Oceanodroma 9, 10
montagni, Penelope 146
montana, Agriornis 146
Monticola 56
monticola, Oenanthe 54, 55, 58
morio, Onychognathus 104
Motacilla alba 8
— flava 8, 212
— striata 106
— subflava 109
mozambicus, Serinus 105, 214
mulsant, Acestrura 146
multicolor, Petroica 193
murina, Notiochelidon 29, 146
Muscicapa adusta 104, 214
— aquatica 214
— caerulescens 13, 104
— capensis 122
— gambagae 214
— maculata 202
— sandwichensis 202
— striata 104, 106, 214
Muscisaxicola alpina 146
Musophaga violacea 210
Myadestes 202
Myiagra azureocapilla 193
— vanikorensis 193
Myioborus melanocephalus 146
Myiophobus cryptoxanthus 29
— fasciatus 29, 77
Myiotheretes erythropygius 146
— fumigatus 146
— striaticollis 146
Myrmecocichla 53, 56, 58
mzimbaensis, Anthus 43–46

naevia, Coracias 102, 211
namaquus, Thripias 102
nanum, Glaucidium 69–71, 72
narina, Apaloderma 13
nasutus, Tockus 212
natalensis, Cisticola 104, 213
— Cossypha 13, 20, 103
naumanni, Falco 111
nebularia, Tringa 210
Necrosyrtes monachus 209
Nectarinia amethystina 13, 104, 221–223
— famosa 104
— fuliginosa 221–223
— kilimensis 104
— manoensis 104
— olivacea 13, 19, 104, 113
— pulchella 214
— senegalensis 104, 214
— talatala 104
— ursulae 114
— venusta 104
— veroxii 13, 19
Nettapus auritus 208
Nicator chloris 13, 17
niger, Parus 103, 135, 136, 137
nigerrimus, Knipolegus 156
nigricans, Sayornis 34
nigriceps, Veniliornis 146
nigrocristatus, Basileuterus 146
Nilaus afer 104, 213, 219
Niltava herioti 50
nitidula, Mandingoa 105
niveicapilla, Cossypha 213
niveoguttatus, Hypargos 105
Notiochelidon cyanoleuca 146
— murina 29, 146
nubicus, Merops 211
Numida meleagris 5, 101
nuna, Lesbia 146
Nycticorax nycticorax 7

obbiensis, Calandrella 96, 97
— ,Spizocorys 97, 99
obscurus, Turdus 129
occipitalis, Podiceps 146
Oceanodroma chapmani 9, 10
— homochroa 10
— leucorhoa 9, 10, 147
— markhami 9
— matsudairae 9
— melania 10
— monorchis 9, 10

Oceanodroma tristrami 9
ocellata, Leipoa 64
occulta, Batis 122
ochrolaemus, Automolus 28
ochropus, Tringa 127, 210
Ochthoeca frontalis 146
— fumicolor 28, 29, 146
— rufipectoralis 146
ocularis, Ploceus 105, 114
Oena capensis 210
Oenanthe 53, 54, 55, 56, 57, 58
Oenanthe bottae 213
— deserti 54, 55
— moesta 54, 55
— monticola 54, 55, 58
— oenanthe 6, 213
— phillipsi 54, 55
— xanthoprymna 54, 55
oenocauda, Metallura 143
olivacea, Nectarinia 13, 19, 104, 113
olivaceus, Telophorus 104
— , Turdus 103
olivea, Tesia 165
onguabi, Streptopelia 225–227
onocrotalus, Pelecanus 7
Onychognathus morio 104
Oreomanes fraseri 145, 146
Oreomystis bairdi 202
Oreotrochilus leucopleurus 72
orientalis, Merops 211
— , Psalidoprocne 102
Oriolus auratus 103, 216
— larvatus 103
— oriolus 6
orix, Euplectes 105
ornata, Thlypopsis 146
Ornithion inerme 156
Otis denhami 5
Otus 71
Otus leucotis 211
— megalotis 50
— senegalensis 102
ovampensis, Accipiter 101, 110
Oxylophus jacobinus 210
— levaillantii 211
Oxyura jamaicensis 146

Pachycephala inornata 65
Pachycephalopsis hattamensis 119, 121
Pachycephalopsis hattamensis lecroyae *subsp. nov.* 120
Pachycephalopsis poliosoma 120
Pachycoccyx audeberti 218
Pachyptila belcheri 147
— vittata 147
pacifica, Certhia 204
— , Drepanis 204
pallida, Hippolais 40, 213
pallidipes, Cettia 164, 165
pallidus, Bradornis 213
— , Melaenornis 104
palustris, Acrocephalus 103
paradisea, Vidua 105, 215
parnaguae, Mexaxenops 154, 155
Parula americana 35
parulus, Anairetes 77, 146
Parus griseiventris 135, 137
— leucomelas 135
— niger 103, 135, 136, 137
— rufiventris 134–137
Parus rufiventris stenotopicus *subsp. nov.* 136
parvirostris, Colorhamphus 77
parvus, Cypsiurus 102, 211
Passer domesticus 104, 196–198
— griseus 215
— hispaniolensis 196–198
— italiae 215
Patagona gigas 144, 146
pectoralis, Caprimulgus 102
pecuarius, Charadrius 100
Pelecanus onocrotalus 7
pelios, Turdus 213
peltata, Platysteira 13, 18
Penelope montagni 146
peregrinus, Falco 144, 146
perlatum, Glaucidium 211
Pernis apivorus 208
perreini, Estrilda 105
personata, Calandrella 96, 97
— , Poephila 65
— , Prosopeia 185, 187–194
— , Rhipidura 193
— , Spizocorys 97, 100
personatus, Trogon 146
Petroica multicolor 193
Petronia dentata 215
— superciliaris 104
petrosus, Ptilopachus 209
Phaeornis 202
Phaethornis superciliosus 154
Phalacrocorax africanus 7, 208
— atriceps 69
— carbo 101, 125
— gaimardi 69
— magellanicus 69
Phalcobaenus carunculatus 146
Pheucticus chrysopeplus 146
philippensis, Sturnus 107–108
Philitarius socius 228–232
Philitarius socius xericus *subsp. nov.* 231
phillipsi, Oenanthe 54, 55
Philomachus pugnax 8, 128, 210
Philydor 155
phoeniceus, Agelaius 35
Phoenicopterus minor 101
— ruber 101
Phoeniculus aterrimus 212
— purpureus 13, 16, 212
Phoenicurus phoenicurus 6, 213
Phrygilus atriceps 78, 80
— gayi 78, 80, 81
— unicolor 146
Phyllastrephus flavostriatus 103
— poliocephalus 113
— strepitans 13, 17
— terrestris 103
Phylloscopus bonelli 6

Phylloscopus collybita 6
— sibilatrix 213
— trochilus 103, 213
Picoides villosus 176
picta, Ispidina 13, 16, 102
Piculus rivolii 146
picumnus, Climacteris 65
pileatus, Herpsilochmus 154
Pinarornis plumosus 103
Pionus seniloides 146
Piranga ludoviciana 35
piscator, Crinifer 210
Pitangus sulphuratus 77
plancus, Polyborus 144
platensis, Cistothorus 146
platurus, Anthreptes 214
Platycercus 187
Platycercus elegans 187
— peltata 13, 18
plebejus, Turdoides 213
Plocepasser superciliosus 215
Ploceus bicolor 13, 19, 20
— cucullatus 105, 214
— luteolus 214
— ocularis 105, 114
— velatus 214
— xanthops 105
plumata, Prionops 212
plumatus, Prionops 104
plumbea, Ictinia 149–151
plumbeiceps, Todirostrum 136
plumosus, Pinarornis 103
Podiceps occipitalis 146
poecilochrous, Buteo 29
Poephila personata 65
Pogoniulus bilineatus 102
— chrysoconus 102, 212
Pogonocichla stellata 103
Poicephalus 186
Poicephalus senegalus 5, 210
poicilotis, Hylophilus 154
poliocephalus, Phyllastrephus 113
poliosoma, Pachycephalopsis 120
Polyboroides typus 101, 209
Polyborus plancus 144
polyglotta, Hippolais 213
polyosoma, Buteo 146
polysticta, Asthenes 75
Polytelis 188
Porphyrio alleni 209
Porphyrula alleni 101
Porzana pusilla 127
prevostii, Anthracothorax 33
Prinia fluviatilis 108–109
— robertsi 104
— subflava 104, 108–109, 213
Prionops plumata 212
— plumatus 104
— retzii 104
Prodotiscus regulus 102
Prosopeia 185–194
Prosopeia atrogularis 186–194
— koroensis 187–191
— personata 185, 187–194
Prosopeia splendens 187–194
— tabuensis 185, 187–194
— taviunensis 187–191, 194
provocator, Foulehaio 193
Psalidoprocne orientalis 102
Psephotus pulcherrimus 65
Pseudalaemon 82, 183
Pseudalaemon fremantlii 82
Pseudocolaptes boissonneautii 146
Pseudohirundo griseopyga 102
Pseudonigrita 228
Pseudonigrita arnaudi 228
— cabanisi 228
Psittacula krameri 5, 210
Psittacus 186
Psittrichas 186
Pterocles exustus 5
— quadricinctus 210
Pterophanes cyanopterus 146
Ptilinopus 188
Ptilinopus layardi 193
— luteovirens 193
Ptilopachus petrosus 209
Ptilostomus afer 216
pugnax, Philomachus 8, 128, 210
pulchella, Nectarinia 214
pulcher, Spreo 216
pulcherrimus, Malurus 65
— , Psephotus 65
purpurascens, Vidua 105
purpurea, Ardea 208
purpureus, Lamprotornis 216
— , Phoeniculus 13, 16, 212
pusilla, Eremomela 213
— , Porzana 127
pusillus, Merops 102
Pycnonotus barbatus 103, 212
— jacosus 200
Pyriglena atra 155
— leucoptera 155
Pyrrhomyias cinnamomea 146
pyrrhonota, Hirundo 35
Pytilia afra 105
— melba 105, 117–119, 215

quadricinctus, Pterocles 20
quadricolor, Telophorus 104
quadrivirgata, Cercotrichas 13, 17, 20
— , Erythropygia 103
quartinia, Estrilda 105
Quelea erythrops 215
— quelea 8, 105
querquedula, Anas 8
quinta, Sturnella magna *subsp. nov.* 161
quitensis, Grallaria 146

Rallina euryzonoides 49
— fasciata 127
ralloides, Ardeola 7, 208
rapax, Aquila 110
raytal, Calandrella 96, 97, 99
razae, Alauda 82–85
— , Spizocorys 82
Razocorys 82

Recurvirostra avosetta 210
reguloides, Anairetes 77
regulus, Prodotiscus 102
reichenovii, Cryptospiza 105
reinwarti, Megapodius 65
resplendens, Vanellus 146
retzii, Prionops 104
Rhamphomicron microrynchum 146
Rhinoptilus chalcopterus 101
Rhipidura personata 193
— spilodera 193
rhodopareia, Lagonosticta 105
ridibundus, Larus 122–123
Riparia riparia 8, 129, 212
rivolii, Piculus 146
roberti, Cossypha 112
robertsi, Prinia 104
roseicollis, Agapornis 189
Rostratula benghalensis 101
Rostrhamus sociabilis 33
ruber, Phoenicopterus 101
rubetra, Saxicola 53, 55, 213
rubricata, Lagonosticta 105
rubriceps, Anaplectes 105
rubrocristatus, Ampelion 146
rudis, Ceryle 211
rufa, Anhinga 7
— , Cisticola 213
— , Sarothrura 101
— , Trichocichla 188
rufescens, Calandrella 96, 97, 99
— , Sylvietta 103
ruficapilla, Grallaria 146
ruficauda, Histurgops 228
rufinucha, Atlapetes 146
rufipectoralis, Ochthoeca 146
rufipennis, Butastur 209
— , Geositta 73, 74
rufiventris stenotopicus, Parus *subsp. nov.* 134–137
rufobrunneus, Thripadectes 28
rufocinnamomea, Mirafra 102, 212
rufula, Grallaria 146
rustica, Hirundo 11, 102, 212
rutilus, Cypseloides 26, 27

Saltator coerulescens 35
sandwichensis, Chasiempis 202
— , Muscicapa 202
— , Turdus 202
saphirina, Geotrygon 26
Sarkidiornis melanotos 208
Sarothrura boehmi 101
— rufa 101
Saxicola 53, 54
Saxicola bifasciata 53, 55, 58
— rubetra 53, 55, 213
— torquata 53, 55, 103
Sayornis nigricans 34
scansor, Sclerurus 155
Scelorchilus albicollis 76
scirpaceus, Acrocephalus 36, 37, 40
Sclerurus albigularis 28
— guatemalensis 28
Sclerurus scansor 155
Scolopax 106
Scolopax cinerea 106
— terek 106
Scopus umbretta 110, 218
scoresbii, Leucophaeus 69
scotops, Eremomela 103
Scytalopus latebricola 146
— magellanicus 146
— unicolor 146
seledon, Tangara 157
semirufa, Hirundo 212
semitorquata, Streptopelia 210
senator, Lanius 6, 212
senegala, Lagonosticta 105, 215
— , Tchagra 104, 213
senegalensis, Burhinus 210
— , Centropus 102, 211
— , Halcyon 102, 211
— , Hirundo 212
— , Nectarinia 104, 214
— , Otus 102
— , Streptopelia 111, 210
— , Zosterops 104, 214
senegaloides, Halcyon 13
senegallus, Vanellus 210
senegalus, Poicephalus 5
seniloides, Pionus 146
sericea, Loboparadisea 139
Serinus gularis 101, 105
— leucopygius 214
— menelli 214
— mozambicus 105, 214
— sulphuratus 101, 105
Serpophaga cinerea 146
serranus, Larus 146
— Turdus 146
sibilatrix, Phylloscopus 213
Sicalis luteola 55
similis, Anthus 104
sinensis, Ixobrychus 49
sitticolor, Conirostrum 146
sittoides, Diglossa 146
smithii, Anas 100
Smithornis capensis 102
sociabilis, Rostrhamus 33
socius xericus, Philitarius *subsp. nov.* 228–232
solitaria, Tringa 146
solitarius, Cuculus 102
soloensis, Accipiter 127
solstitialis, Troglodytes 146
somalica, Calandrella 96, 97, 99
sparverius, Falco 146
Spermestes bicolor 105
— cucullatus 105
— fringilloides 105
Sphenoeacus afer 103
spilodera, Rhipidura 193
Spinus magellanicus 146
Spizocorys 82, 95, 98
Spizocorys conirostris 99
— fringillaris 99
— obbiensis 99

Spizocorys personata 100
— razae 82
— sclateri 99
splendens, Corvus 199–200
— , Prosopeia 187–194
sponsa, Aix 175
Sporaeginthus subflava 105
Sporopipes frontalis 215
— squamifrons 101
Spreo pulcher 216
squamata, Drymophila 155
squamiceps, Urosphena 164, 165
squamifrons, Sporopipes 101
squamiger, Margarornis 146
squamigera, Grallaria 146
squamulatus, Turdoides 13, 17, 20
Stactolaema whytii 102
stagnatalis, Tringa 101
stanleyi, Chalcostigma 146
starki, Calandrella 96, 97
— , Eremalauda 97, 100
steirlingi, Camaroptera 103
stellata, Pogonocichla 103
stenotopicus, Parus rufiventris *subsp. nov.* 136
Stercorarius longicaudus 148
Sterna hirundinacea 69
— trudeaui 69
stictopterus, Mecocerculus 146
strepitans, Phyllastrephus 13, 17
Streptopelia abunda 226
— capicola 225–227
— chinensis 49
— damarensis 225–227
— hypopyrrha 47–48
— onguati 225–227
— semitorquata 210
— senegalensis 111, 210
— tropica 226, 227
— turtur 8, 47
— vinacea 210
Streptoprocne zonaris 146
striata, Dendroica 106
— , Motacilla 106
— , Muscicapa 104, 106
striaticollis, Myiotheretes 146
striatus, Accipiter 33, 146
— , Butorides 208
— , Colius 102
Strix woodfordii 102
Struthio camelus 6
stuartkeithi, Corythornis cristata *subsp. nov.* 159
Sturnella magna 160
Sturnella magna quinta *subsp. nov.* 161
sturninus, Sturnus 107–108
Sturnus philippensis 107–108
— sturninus 107–108
subflava, Motacilla 109
— , Prinia 104, 108–109, 213
— , Sporaeginthus 105
subulata, Urosphena 164, 165
sulfureopectus, Telophorus 104
sulphuratus, Pitangus 77
— , Serinus 101, 105
superciliaris, Hemispingus 146
— , Petronia 104
— , Tesia 164, 165
superciliosa, Drymocichla 109
— , Eumomota 34
superciliosus, Centropus 102
— , Phaethornis 154
— , Plocepasser 215
sylvatica, Turnix 101
Sylvia atricapilla 6
— borin 103
— communis 6
Sylvietta 5
Sylvietta brachyura 213
— leucophrys 220
— rufescens 103
— whytii 103
Synallaxis azarea 146
— gularis 146

tabuensis, Layardiella 186
— , Prosopeia 185, 187, 194
tachiro, Accipiter 13, 101
Tachycineta albilinea 34
— bicolor 34, 171, 176
— cyaneoviridis 170–180
— euchrysea 176
— thalassina 176
taeniata, Dubusia 146
tahapisi, Emberiza 105, 214
talatala, Nectarinia 104
Tangara seledon 157
— vassorii 146
taviunensis, Prosopeia 187, 191, 194
Tchagra australis 104
— senegala 104, 213
tectus, Vanellus 210
Telecanthura ussheri 211
Telophorus olivaceus 104
— quadricolor 104
— sulfureopectus 104
— zeylonus 101
temminckii aridus, Calidris *subsp. nov.* 127
temminckii, Cursorius 5, 51–52, 210
Terathopius ecaudatus 209
terek, Scolopax 106
Terenura maculata 155
Terpsiphone atrocaudata 129
— viridis 13, 18, 104, 214
terrestris, Phyllastrephus 103
Tesia 162–166
Tesia castaneocoronata 164, 165, 166
— cyaniventer 164, 165, 166
— everetti 164, 165, 166
— olivea 164, 165, 166
— superciliaris 164, 165, 166
thalassina, Tachycineta 176
Thamnolaea 56
Thamnolaea cinnamomeiventris 103
Thlypopsis ornata 146

thoracica, Apalis 103
Threskiornis aethiopicus 7
Thripadectes flammulatus 146
— melanorhynchus 28
— rufobrunneus 28
Thripias namaquus 102
Thripophaga 75
Thripophaga humicola 75
thula, Egretta 33, 67
tinnunculus, Falco 101, 209, 218
Tockus alboterminatus 102
— erythrorhynchus 212
— nasutus 212
Todirostrum plumbeiceps 156
torquata, Saxicola 53, 55, 103
torquatus, Atlapetes 145
— , Celeus 154
— , Lybius 102
torquilla, Jynx 6
Trachyphonus vaillantii 104
traylori, Anthus 3, 46
Treron calva 102, 210
— waalia 210
Trichocichla rufa 188
Trichoglossus 187
Tricholaema 180–181
Tricholaema flavibuccale 181
— flavipunctata 181
— hirsuta 180–181
— lachrymosa 181
— leucomelaina 181
tricollaris, Charadrius 101
Tringa 106
Tringa cinerea 106, 107
— nebularia 210
— ochropus 127, 210
— solitaria 146
— stagnatalis 101
tristigma, Caprimulgus 102
tristrami, Oceanodroma 9
trivialis, Anthus 104
trochilus, Phylloscopus 103, 213
Trochocercus albonotatus 104
— cyanomelas 13, 18
troglodytes, Estrilda 215
Troglodytes solstitialis 146
Trogon personatus 146
tropica, Streptopelia 226, 227
trudeaui, Sterna 69
turcosa, Cyanolyca 146
Turdoides plebejus 213
— squamulatus 13, 17, 20
Turdus celaenops 93–95
— chrysolaus 95
— dissimilis 95
— fuscater 30, 146
— libonyanus 103
— olivascens 103
— obscurus 129
— pelias 213
— sandwichensis 202
— serranus 146
Turnix sylvatica 101
Turtur abyssinicus 210
— alcospilos 13, 15, 102
— tympanistria 13, 102
turtur, Streptopelia 8, 47
tympanistria, Turtur 13, 102
typus, Polyboroides 101, 209
Tyranniscus uropygialis 146
tyrianthina, Metallura 27, 144, 146
Tyto alba 211
— capensis 128

umbretta, Scopus 110, 208
unicincta, Columba 111
unicolor, Phrygilus 146
— , Scytalopus 146
Upucerthia dumetaria 73
Upupa epops 6, 212
Uraeginthus angolensis 105
— bengalus 215
— granatinus 105
urbica, Delichon 102, 212
uropygialis, Tyranniscus 146
Urosphaena 162–166
ursulae, Nectarinia 114
Urosphena squamiceps 164, 165, 166
— subulata 164, 165, 166
— whiteheadi 164, 165, 166
ussheri, Telecanthura 211

vaalensis, Anthus 104
vaillantii, Trachyphonus 102
Vanellus resplendens 146
— senegallus 210
— tectus 210
vanikorensis, Myiagra 193
variegatus, Indicator 13, 20, 102
vassorii, Tangara 146
velatus, Ploceus 214
Veniliornis nigriceps 146
venusta, Nectarinia 104
vermivorus, Helmitheros 35
veroxii, Nectarinia 13, 19
verrauxi, Leptoptila 146
verreauxii, Aquila 101
verticalis, Hemispingus 145, 146
Vestiaria coccinea 202, 203
vestitus, Eriocnemis 146
vexillarius, Macrodipteryx 102
victoriae, Lamprolia 188
— , Lesbia 27, 28, 146
Vidua chalybeata 215
— macroura 105, 215
— paradisea 105, 215
— purpurascens 105
viduata, Dendrocygna 208
vilissimus, Zimmerius 34
villosus, Picoides 176
vinacea, Lagonosticta 215
— , Streptopelia 210
Vini 187
viola, Heliangelus 144, 146
violacea, Hyliota 113
— , Musophaga 210

violiceps, Amazilia 31, 34
virginianus, Bubo 146
viridis, Gymnomyza 193
— , Laterallus 153
— , Terpsiphone 13, 18, 104, 214
vitiensis, Columba 128
vittata, Pachyptila 147
Vultur gryphus 143, 146

waalia, Treron 210
whiteheadi, Urosphena 164, 165
whytii, Stactolaema 102
— , Sylvietta 103
williami, Metallura 144, 146
woodfordi, Ciccaba 13
woodfordii, Strix 102

xanthoprymna, Oenanthe 54, 55
xanthops, Ploceus 105
Xenops 155
Xenopsaris albinucha 156
Xenus cinereus 106, 107
xericus, Philitarius socius *subsp. nov.* 231
Xiphocolaptes falcirostris 154
— franciscanus 154

zeylonus, Telophorus 101
Zimmerius vilissimus 34
zonaris, Streptoprocne 146
Zonibyx modestus 166–169
Zonotrichia capensis 146
Zoothera dauma 50
Zosterops senegalensis 104, 214

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Bulletin of the

British Ornithologists' Club

Edited by
Dr J. F. MONK

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Volume 110 No. 1 March 1990

FORTHCOMING MEETINGS

Tuesday, 8 May 1990. Dr R. J. Cowie will speak on **"The Ecology of Tits in Suburban Habitats".**

Those wishing to attend should notify the Hon. Secretary by Tuesday, 24 April 1990*.

Dr Cowie is Lecturer in the School of Biology, University of Wales, Cardiff. He is working on the ecology of bird populations and foraging behaviour.

Tuesday, 29 May 1990. Mr J. E. Cooper, FRCVS will speak on **"Birds and Diseases".**

Those wishing to attend should notify the Hon. Secretary by Tuesday, 15 May 1990*.

The Chairman will give a short address at the end of dinner on the changing face of the Club 1938–1989.

Mr Cooper is Veterinary Conservator and Senior Lecturer in Comparative Pathology at the Royal College of Surgeons of England. He is particularly interested in diseases and pathology of non-domesticated species and has written and edited several books on avian diseases.

Tuesday, 19 June 1990. Dr Margaret Carswell will speak on **"The Uganda Atlas of Birds".**

The meeting at which Dr Carswell was to have spoken had to be postponed last year because of transport strikes. Dr Carswell has kindly agreed to give her address at this meeting.

800th Meeting of the British Ornithologists' Club

The 800th Meeting of the Club will be held in the evening of Tuesday, 10 July 1990 at Imperial College.

The address will be given by the Earl of Cranbrook, PhD, "Development of Habitat and Species Protection in the European Community".

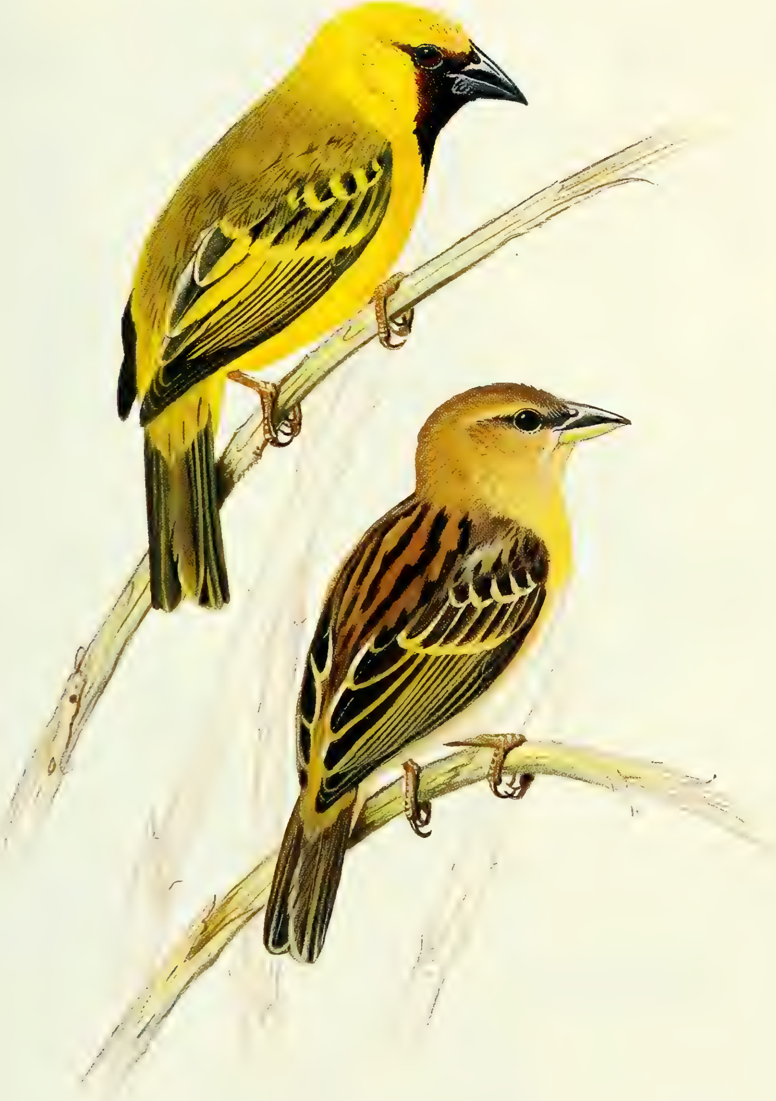
Lord Cranbrook is Chairman of the Environmental Sub-Committee of the House of Lords on European Communities.

Tuesday, 25 September 1990. Dr Michael Rands will speak on **"An Island Paradise? Ornithology and Conservation in the Seychelles".**

Meetings are held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6.15 pm for 7 pm.

*It is usually possible to take acceptances up to the weekend before a meeting, but Members are asked to accept by 14 days before a meeting as the numbers attending must be notified. A plan showing Imperial College will be sent to members on request.

If you accept and subsequently find you cannot attend please notify the Hon. Secretary, 1 Uppingham Road, Oakham, Rutland LE15 6JB (tel. 0572 722788) as soon as possible.



Martin Woodcock

Plate 1. The Kilombero Weaver *Ploceus burnieri*, a male and female in breeding plumage. Painted from the holotypes and from photographs of live birds by Martin Woodcock. See page 52.

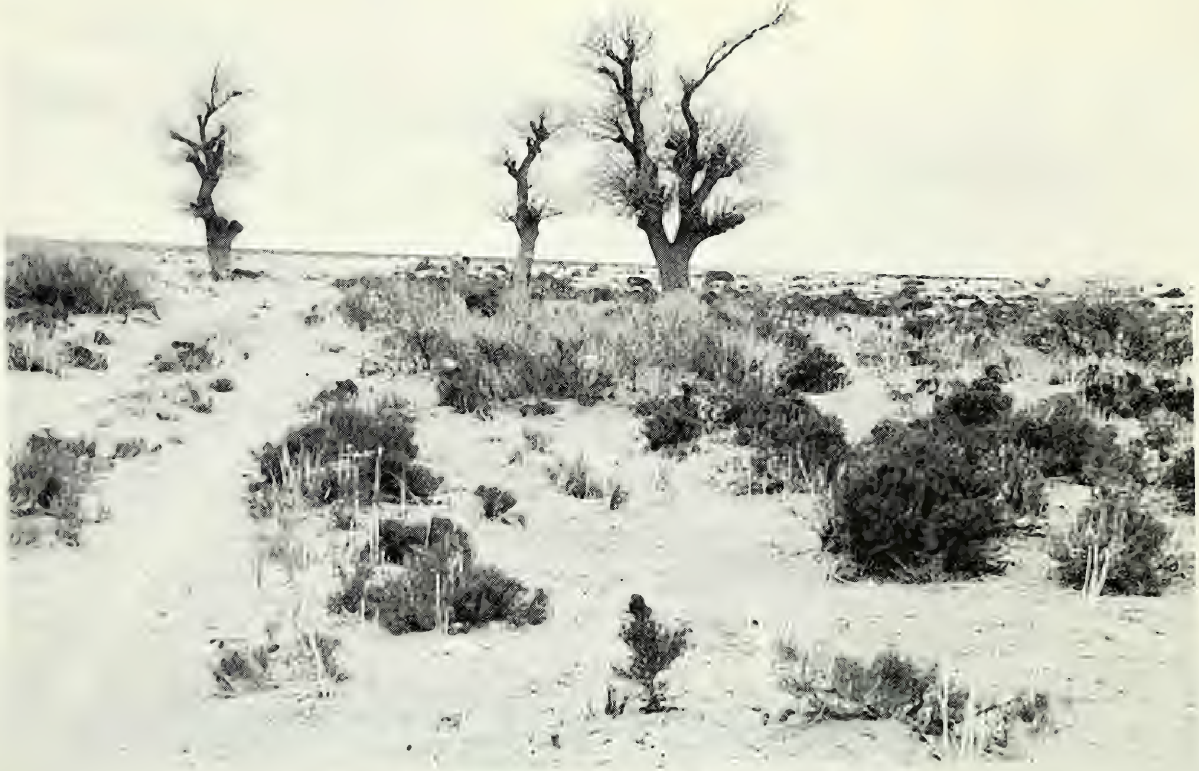


Plate 2. A typical *daia* near Ain Oussera, Algeria. See page 8.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 110 No. 1 Published: 14 March 1990

REPORT OF THE COMMITTEE FOR 1989

Meetings. Nine meetings of the Club were held in 1989 and a tenth meeting which had been arranged for July had to be cancelled at the last moment because of a transport strike. The total attendances of members and their guests during the year was 410, which (excluding meetings held jointly with the British Ornithologists' Union) is the largest number since 1936.

All the meetings were held in the Senior Common Room, Imperial College, London, with a buffet supper. The Committee welcomes views and suggestions of members for future meetings.

The Club was fortunate in having a programme of eminent speakers during the year whose subjects between them covered aspects of ornithology in all 5 continents. Amongst the speakers we were pleased to welcome Dr Algirdas Knystautas, Dr Werner Suter and Mr Ben King during their brief visits to London.

The Committee met 6 times during the year and the attendance was 89%. A new projector has been purchased, as it is no longer possible to obtain spares to repair the projector presented to the Club in 1969 by Mrs B. P. Hall. Reprinting of back numbers of the *Bulletin* to complete the stock held by the Club is being continued. A new membership recruitment leaflet was produced and copies were enclosed in *Ibis* of July 1989.

A current list of Members will be printed with the Index to Vol. 109 of the *Bulletin*.

Deaths. It is with very deep regret that the Committee reports the deaths of H. G. Alexander, Sir Hugh Elliott, Bt., OBE (Member 1953–1989, Committee 1964–1967, Vice-Chairman 1968–1971, Chairman 1971–1974, Editor 1974–1975) and Dr P. G. Morris (Member 1986–1989).

Horace G. Alexander, who became a member of the Club in 1911, celebrated his 100th birthday on 8 April 1989 and a card with an illustration of a Chiffchaff *Phylloscopus collybita,* drawn specially and presented by Martin Woodcock, had been sent to him with the Club's good wishes. An obituary will appear in *Ibis*.

Sir Hugh Elliott joined the Club in 1953. He was Vice-Chairman and Chairman when the Club was experiencing difficult times and, thanks to his wise direction and a great deal of work which he carried out personally, he was substantially responsible for the ensuing increasing prosperity of the Club. Among his work for the Club he undertook re-organisation of the accounts, sorted and catalogued, in very uncomfortable surroundings, the Club's entire stock of *Bulletin* back numbers, then moved them to better accommodation, dealt with orders for sales which had been building up, instigated the supplying of separates to *Bulletin* authors and set in train, after a gap of 27 years, the resumption of printing in the *Bulletin* the names of those attending meetings. An obituary will appear in *Ibis*.

Membership. There was an increase in paid up membership of the Club in 1989. By the end of the year there were 621 members, 396 with UK addresses and 225 overseas. The Club welcomed 68 new members, 4 members who had been in arrears became paid up and 8 members resigned. The number of members in arrears in 1989 was 18, and 17 members were struck off under Rule (7) having been in arrears with their subscriptions due in 1988.

Bulletin sales. Non-member subscribers were 142 (18 within the UK and 124 overseas). We must again record the thanks of the Club to Mrs F. E. Warr for the great deal of work she does looking after the stock of back numbers of the *Bulletin* and dealing with back number sales and separates for authors.

Finance. The accounts for 1989 are not yet available. They will be circulated at the Annual General Meeting and will be published subsequently in the *Bulletin*. Members wishing to have a copy before the Annual General Meeting are asked to apply to the Hon. Secretary.

Bulletin. Volume 109 contained an almost unprecedented 247 pages. This is due to the healthy finances of the Club and a welcome wealth of submissions from a world wide spread of authors.

Some 45% of papers related to systematics and nomenclature involving museum work, but regrettably there has been no amelioration of the policy of the Trustees of the British Museum (Natural History) to abandon research by the staff of the BMNH at Tring. It is difficult not to conclude that ornithology at the Museum is continuing to wilt under their auspices and it is to be hoped that the Trustees will soon reverse their decision of 1988 and restore resources for taxonomic research on birds at the Sub-Department of Ornithology at Tring.

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club will be held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6 p.m. on Tuesday, 29 May 1990.

AGENDA

1. Minutes of the 1989 Annual General Meeting (see *Bull. Brit. Orn. Cl.* 109(2): 61).
2. Report of the Committee and Accounts for 1989
3. *The Bulletin*
4. The election of Officers. The Committee proposes that:—
   (i) Mr D. Griffin be elected Vice-Chairman (*vice* Mr J. H. Elgood, who is standing down)
   (ii) Dr J. F. Monk be re-elected Editor, and Dr D. W. Snow be elected to succeed him at a date to be decided by the Committee

(iii) Mrs A. M. Moore be re-elected Honorary Secretary
(iv) Mr S. J. Farnsworth be elected Honorary Treasurer (*vice* Mrs D. M. Bradley who retired 31 December 1989)
(v) Cdr M. B. Casement, OBE, RN, Revd T. W. Gladwin and Dr A. Tye be elected Members of the Committee (*vice* Mr S. J. Farnsworth and Mr D. Griffin if elected as above, and Mr N. H. F. Stone, who is ineligible for re-election).

5. Any other business of which notice shall have been given in accordance with Rule (12).

By Order of the Committee
AMBERLEY M. MOORE *Honorary Secretary*

The seven hundred and ninety-first Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 7 November 1989 at 7 pm.

25 Members and 13 guests attended.

Members present were: R. E. F. PEAL (*Chairman*), M. A. ADCOCK, Miss H. BAKER, A. H. BAYLIS, P. J. BELMAN, Mrs D. M. BRADLEY, A. P. E. CAIN, P. J. CONDER, S. J. FARNSWORTH, Miss C. FISHER, A. GIBBS, B. GRAY, D. GRIFFIN, C. HELM, Revd. G. K. McCULLOCH, Dr A. MELDRUM, Dr J. F. MONK, Mrs A. M. MOORE, R. MORGAN, P. OLIVER, A. J. RANDALL, V. SAWLE, Dr R. C. SELF, N. H. F. STONE, A. TANNER.

Guests present were: P. ROBINSON (*Speaker*), Mrs B. ADCOCK, Dr R. J. BAKER, Dr J. BRADLEY, I. BRADLEY, Mrs F. FARNSWORTH, R. GILBY, Mrs J. GOFFE, Miss K. HOFF, S. JONES, Mrs I. McCULLOCH, P. J. MOORE, Mrs M. OLIVER.

After supper Mr Peter Robinson spoke about his work as the Enforcement Officer of the Royal Society for the Protection of Birds and the very wide field of reference of the Species Management Department of the Society. He illustrated examples of deliberate and accidental threats to bird populations, of the various methods adopted to combat them and talked briefly on some of the problems of bird protection encountered overseas.

The seven hundred and ninety-second Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College on Tuesday, 28 November 1989 at 7 p.m. 34 members and 22 guests were present.

Members attending were: R. E. F. PEAL (*Chairman*), M. A. ADCOCK, Dr J. S. ASH, Miss H. BAKER, B. H. BECK, R. BEECROFT, Mrs D. BRADLEY, Cdr M. B. CASEMENT, RN, I. D. COLLINS, Dr H. CRICK, J. H. ELGOOD, S. J. FARNSWORTH, A. GIBBS, Revd T. GLADWIN, D. GRIFFIN, C. HELM, R. KETTLE, Dr P. LACK, Revd G. K. McCULLOCH, Dr A. MELDRUM, Dr J. F. MONK, Mrs A. MOORE, R. MORGAN, Mrs M. MULLER, P. OLIVER, Dr R. PRYCE-JONES, A. J. RANDALL, V. SAWLE, Dr R. C. SELF, R. E. SHARLAND, N. H. F. STONE, A. R. TANNER, Dr A. TYE, C. E. WHEELER.

Guests attending were: Dr P. JONES (*Speaker*), Mrs B. ADCOCK, Mrs J. W. ASH, Mrs M. E. BAKER, Dr R. J. BAKER, Mrs G. BONHAM, Mr D. BROOKS, Mrs W. BROOKS, Miss J. EDRICH, Mrs B. GIBBS, Mrs J. M. GLADWIN, Mrs S. GRIFFIN, Ms K. HOFF, Mrs I. McCULLOCH, Dr H. MELDRUM, Mr P. J. MOORE, Mr W. PEACH, Miss D. RIDGLEY, Mrs M. SOUTHGATE, Dr V. SOUTHGATE, Mrs H. TYE, Professor L. UNDERHILL.

After supper Dr Peter Jones gave an address "The Migration Strategies of Palaearctic Migrants in West Africa in relation to Sahelian Drought". He presented data on migration patterns, particularly within Nigeria, collected in recent years and collated with rainfall and climatic records of the period. These show that Palaearctic passerines must adapt their migration strategies to prevailing local climatic conditions in Africa and they help assess the magnitude of the ecological problems confronting the migrants. A stimulating discussion followed only curtailed by lack of time.

The seven hundred and ninety-third Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College on Thursday, 14 December 1989 at 7 p.m. 30 members and 18 guests were present.

Members attending were: R. E. F. PEAL (*Chairman*), Miss H. BAKER, B. H. BECK, P. BELMAN, Mrs D. M. BRADLEY, K. F. BETTON, P. BULL, Cdr M. B. CASEMENT, RN, I. D. COLLINS, P. CONDER, Dr R. A. F. COX, S. J. FARNSWORTH, D. FISHER, A. GIBBS, D. GRIFFIN, R. P. HOWARD, R. KETTLE, J. KING, Dr J. F. MONK, A. G. MOORE, Mrs A. M. MOORE, R. MORGAN, P. OLIVER, A. J. RANDALL, Dr R. C. SELF, Dr D. SNOW, N. H. F. STONE, Dr D. H. THOMAS, J. J. WHEATLEY, M. WOODCOCK.

Guests attending were: Dr B. KING (*Speaker*), Dr J. BRADLEY, Dr R. CHANDLER, Mrs F. FARNSWORTH, Mrs S. GRIFFIN, D. HARRIS, Ms C. HOFF, Ms L. HOGAN, Mrs R. HOWARD, Dr A. MELLAND, P. J. MOORE, Mrs M. OLIVER, R. RANFT, Mrs B. K. SNOW, Mr I. THOMAS, D. TOMLINSON, Mrs D. TOMLINSON, Mrs B. J. WOODCOCK.

After supper Dr Ben King gave an account, illustrated with many of his slides, of travelling in Sichuan Province during his expeditions to China since 1980.

Notes on Philippine birds, 15.

First record of the Red-breasted Flycatcher *Ficedula parva* for the Philippines

by R. Y. McGowan & J. S. Pritchard

Received 6 May 1989

The Red-breasted Flycatcher *Ficedula parva* is recorded as breeding throughout Asia from the Baltic to the Pacific coasts (Medway & Wells 1976), as a winter migrant to China, the entire Indo-Chinese peninsula, Tibet and India (Vaurie 1959, Dement'ev & Gladkov 1968) and as a scarce migrant to the Malay Peninsula (Medway & Wells 1976). Smythies (1981) describes the species as a rare vagrant in Borneo with most reports coming from coastal areas in the north of the island. There is no report of this species in duPont's (1971) work on Philippine birds.

During a faunal survey (carried out by JSP) along the margins of primary forests on Palawan Island, Philippines, a specimen of *Ficedula parva* was collected by mist-netting on 8 December 1988. The nets were located in the understorey of fragmented, lowland riparian forest by the Panitian River between the Nali Dam and Dumalag at c. 70 m above sea level. The specimen was provisionally identified as a first winter female, this being later confirmed by comparison with reference material in the collections of the National Museums of Scotland, Edinburgh, where it is now deposited (specimen no. NMSZ 1989.021.11). The sooty black upper tail coverts are diagnostic of the eastern race *F. p. albicilla* (Vaurie 1959) and the specimen agrees with others of this race from Burma and China held in the NMS.

Measurements (mm) are: body length 121, wing 68, tail 50, tarsus 17, which closely agree with those given by Dement'ev & Gladkov (1968). Fresh weight of the bird was 10 g. This is apparently the first record for the Philippines.

Although Red-breasted Flycatchers have not so far been recorded from Taiwan (King *et al.* 1975) it would be wrong to conclude that the birds from Borneo and Palawan must therefore have crossed the South China Sea. It remains a possibility that migration through Taiwan, Palawan and Borneo takes place, albeit on a small scale.

The increased observer effort in the Philippines over the past few years (e.g. Kennedy *et al.* 1986) has resulted in an increase in the number of species recorded in these islands; further investigations could well show that some of the species currently classed as rare migrants and vagrants do, in fact, occur regularly in small numbers. As pointed out by White (*in* White & Bruce 1986) for Wallacea, Palaearctic migrants have generally been neglected, since collectors have concentrated on indigenous and montane birds, and few residents study the birds or make field observations.

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On the possible former breeding of the Red-footed Falcon *Falco vespertinus* in Algeria

by E. D. H. Johnson & S. J. Farnsworth

Received 9 May 1989

Based on his examination of eggs originally in the Tristram Collection and now in the British Museum (Natural History), Walters (1988) lends support to the statement by Loche (1867) that the Red-footed Falcon *Falco vespertinus* bred in Algeria in the mid-19th century, an assertion dismissed by Heim de Balsac & Mayaud (1962) and ignored by recent authors other than Ledant *et al.* (1981) who draw attention to the formers' opinion.

While we cannot contribute positive evidence of former breeding we can, however, provide supplementary recent information on the data accompanying Tristram's specimens for the 2 locations concerned—"forest south of Lac Halloula" and "neighbourhood of Air Oosera. Lac (illegible)"—adding further circumstantial evidence that the species bred in Algeria in the past.

Lac Halloula was drained for cultivation probably before the end of the 19th century but is still indicated on some recent maps as "Ancien Lac Halloula". It was situated some 65 km SW of Algiers and c. 2 km SE of Sidi Rached (*ex* Montebello) at an altitude of c. 58 m. The lake is not mentioned by Rothschild & Hartert (1912), nor by Ticehurst & Whistler (1938). The surroundings of the former lake are described by Thos Cook (1926) as "miles of well cultivated farms and vineyards". S.J.F. visited the area in 1982, vineyards and orchards still being abundant there. Modern maps show some forest on the northern slopes of Djebel Guerrouat, c. 20 km S of the former lake, but our recent inspection of the Djebel shows that the area is now only lightly wooded. Tristram's nesting site (ref "W.a." "in the forest south of Lac Halloula") would thus be 36°35′N, 2°30′E if located on the N slope of Djebel Guerrouat.

"Air Oosera. Lac (illegible)" undoubtedly refers to Aïn Oussera, a town some 30 km S of Lac Bougzoul (referred to as Lac Boughzoul by some authors) and at an elevation of about 687 m. At 35°27′N, 2°55′E the town would be on the route of Tristram's journeys between Algiers and Laghouat. The lake and its immediate surroundings are described by Francois (1975) and Jacob & Jacob (1980). We have visited the area many times before and after those publication dates. The lake's artificial limits are augmented to the south by a series of *daiet* (temporary flood zones). Today the area is treeless except for a few *Tamarix* sp. on some islets and the extensive reedbeds surrounding the artificial lake are of recent origin. The adjacent steppe between and beyond the *daiet* supports a scattered low herbaceous vegetation partly under nomad or permanent cultivation and pasture. It is probable that climatic conditions were more humid in Tristram's time.

Our field notes (notably 1968–69) show that halfa *Stipa tenacissima* steppe begins just S of Aïn Oussera, varied by a number of scattered *daias* (shallow depressions containing loose moisture-retaining soil but never flooded) (see Plate 2). They support Pistachio *Pistachia atlantica* trees up to 10 m in height, clumps of Jujube *Ziziphus lotus* and low scrub. Here as elsewhere the *Pistachia* are nesting sites of Spanish Sparrow *Passer hispaniolensis* and Brown-necked Raven *Corvus ruficollis*. Varying in width from 50 to 150 m, these *daias* and surrounding steppe have probably remained substantially unchanged for a very long time.

The locations of Lac Halloula and Aïn Oussera (Lac Bougzoul) would have provided at least some of the habitat requirements of *Falco vespertinus* as listed by Cramp & Simmons (1980) (e.g. open terrain fringed or interspersed with trees, fens or bogs, steppe and forest clearings) together with a readily available food supply (insects, small amphibians, reptiles and rodents) and old nests of e.g. Ardeidae at Lac Halloula and Corvidae near Aïn Oussera for breeding.

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Remarks on the osteology of the Madagascan warblers *Dromaeocercus* and *Amphilais* (Sylviidae)

by Storrs L. Olson

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On the basis of external morphology, and to some extent behaviour, Parker (1984) considered that the two Madagascan warblers *Dromaeocercus brunneus* and *D. seebohmi* were only convergently similar in possessing long, decomposed tail feathers. He regarded the type species of *D. brunneus* as belonging to the genus *Bradypterus,* whereas *D. seebohmi* was said to belong with the megalurine warblers and was made the type of a new genus, *Amphilais.* Traylor (1986) evidently was not convinced by Parker's arguments and listed *Amphilais* as a synonym of *Dromaeocercus.*

Examination of the cranial osteology of these 2 species fully supports Parker's contention that they are not congeneric. Compared to *Dromaeocercus brunneus,* the skull in *Amphilais seebhomi* is markedly narrower, the cranium not nearly so broad, and in dorsal view the frontals are much less laterally expanded, in part reflecting the much smaller ectethmoid plates. The bill in *Amphilais* is more slender, with the osseous nares proportionately longer; the transpalatine processes are also much longer and more slender than in *D. brunneus.* Unfortunately, the post-cranial skeleton was rather badly damaged in the single available skeleton of *Amphilais seebohmi* examined, so no useful comparison could be made there. Nevertheless, the cranial differences are greater than would be expected among congeneric species of Sylviidae.

The only skeletons of *Bradypterus* at hand were 2 rather poorly preserved examples of *B. luteoviridis*. These differ markedly from *Dromaeocercus brunneus* in that the frontals are not as expanded, the ectethmoids are much more inflated, and the posterior margin of the nostril is more heavily ossified, thus reducing the aperture of the osseous nares. If *B. luteoviridis* is representative of the genus (it is not typical in the nomenclatural sense, being the type of *Tribura*, a genus now included in *Bradypterus*), then *D. brunneus* should not be included in *Bradypterus*.

As I have noted elsewhere (Olson MS), there is a rather close overall similarity in the skull and external morphology between *Amphilais seebohmi* and the New Zealand fernbirds of the genus *Bowdleria*. However, it would be premature, at this point, to speculate on the closest relatives of either *Dromaeocercus brunneus* or *Amphilais seebohmi*, although the evidence is sufficient to justify maintaining these species in separate genera.

The following skeletal material was examined in the above comparisons: *Bradypterus luteoviridis* USNM 318312, USNM 318313; *Dromaeocercus brunneus* MRAC 50616; *Amphilais seebohmi* USNM 432211; *Bowdleria p. punctata* NMNZ 22848.

Acknowledgements

In addition to specimens in the Smithsonian collections (USNM), I also obtained skeletons on loan from M. Louette, Museum Royal de l'Afrique Centrale, Tervuren, Belgium (MRAC), and J. A. Bartle and P. R. Millener, National Museum of New Zealand (NMNZ), to whom I am most grateful.

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Former breeding of *Sula dactylatra* in the Cape Verde Islands*

by Storrs L. Olson and J. C. den Hartog

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Palaeontological investigations on oceanic islands nearly always produce fossils of extinct or extirpated species of birds. Episodes of extinction are usually strongly correlated with the arrival of *Homo sapiens* and the consequent disruption of insular ecosystems (e.g. Olson 1975, Olson & James 1982, Steadman 1986). The depauperate nature of the avifauna of the islands of the eastern North Atlantic (Macaronesia) and the relative scarcity of strongly differentiated endemic species there, suggest that these islands are not exceptional and have probably been subject to considerable man-caused extinction, as already suggested by fossil discoveries in Madeira (Pieper 1985) and the Canary Islands (Alcover & Florit 1987). To date there has been no concerted effort to locate vertebrate fossils in the Cape Verde Islands, but we report here on a small sample of bones obtained incidental to zoological observations on the island of Cima in August 1986, during the CANCAP VII expedition (den Hartog, in press).

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*CANCAP Contribution No. 79 [Canarian-Cape Verdian Region of the North Atlantic Ocean project.]

Cima is one of the Rombos Islets, which are uninhabited, waterless rocks, nearly barren of vegetation, in the southwestern corner of the archipelago. It was first explored ornithologically in 1897 by Boyd Alexander (Alexander 1898), who noted great numbers of breeding seabirds, mainly Procellariiformes and Brown Boobies *Sula leucogaster*. The fossils discussed here, now in the National Museum of Natural History, Smithsonian Institution (USNM), came from a deposit of sand at the northeastern tip of the island, where severe erosion had exposed numerous bird bones, some eggshells, and shells of the gastropod snail *Zonotecus insularis*. These deposits have not been dated, but the bones do not appear to be mineralized and are probably relatively recent in age, certainly Quaternary and most likely Holocene.

As would be expected, the sample obtained is dominated by Procellariiformes: *Puffinus assimilis boydi* (minimum number of individuals 12, based on right humeri); *Bulweria bulwerii* (mni 5, left humeri); and *Pelagodroma marina* (mni 5, distal ends of left tarsometatarsi). All of these breed on the island today. Included in the collection is the sternal end of a right coracoid of a medium-sized duck (Anatidae), much too fragmentary for specific or even generic identification. What a duck might have been doing in such an environment is quite enigmatic.

The most interesting find is a complete left tarsometatarsus (USNM 440959) and the proximal and distal ends of a right humerus (USNM 440960) of a juvenile sulid, quite possibly from a single individual. Both specimens are quite porous and the humerus is so poorly developed as certainly to be from a bird that had not fledged, thus indicating breeding on the island. The tarsometatarsus is nearly fully formed, with a configuration of the hypotarsus like that of *Sula* rather than *Morus*. Despite being from a juvenile, it measures 53.6 mm in length, which is greater than in any skeletal specimen of *Sula leucogaster* (maximum for *S. l. leucogaster* 47.1 mm, for *S. l. plotus* 52.5 mm), which is the only species of Sulidae known to breed in the Cape Verde Islands (see e.g. Bannerman & Bannerman 1968). In addition, it has the straight profile of the lateral (external) edge of the bone characteristic of *S. dactylatra*, whereas in other boobies the external cotyla and outer trochlea are more laterally expanded. Thus this specimen may be confidently identified as having come from a Masked Booby *Sula dactylatra*, the Atlantic form of which (*S. d. dactylatra*) breeds in the West Indies and on various islands of the Caribbean, and in the South Atlantic at Ascension, Fernando de Noronha, and formerly Trindade.

Sula dactylatra would not be unexpected in the Cape Verdes. Because it requires flat, open areas of ground for nesting, the Masked Bobby appears to be more susceptible to the depredations of man and other mammalian predators than is either the Brown Booby *S. leucogaster*, which may nest on cliff faces and small offshore stacks, or the Red-footed Booby *Sula sula*, which usually nests in trees.

There is ample evidence that *Sula leucogaster* once bred more widely and abundantly in the Cape Verdes than at present, the observations for Cima by Alexander (1898: 95–96), Correia (as quoted by Murphy 1924: 219), and Bourne (1955: 519–520) being particularly elucidating. In 1922, Correia still recorded thousands of birds, and mentioned that "the fishermen slaughter great numbers for food". Bourne, in 1951, also mentioning depredations by fishermen, found only some 250 pairs. At present the population consists of less than 100, possibly no more than some 50 individuals, and fishermen still take any chick they can lay their hands on (den Hartog, in press). Presumably such exploitation exterminated *Sula dactylatra* on Cima, and probably elsewhere in the Cape Verdes, before ornithologists arrived in the archipelago. It would be of interest to learn which other species of birds may have been similarly eliminated there.

Acknowledgements

We are grateful to Kenneth I. Warheit, University of California, Berkeley, for supplying quantitative and qualitative osteological data from his pending revision of the living and fossil Sulidae, in the course of which he has measured most existing skeletal specimens of the family.

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The nest and eggs of Bannerman's Blue-headed Sunbird *Nectarinia bannermani*

by J. F. R. Colebrook-Robjent

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A nest of Bannerman's Blue-headed Sunbird *Nectarinia bannermani* was discovered on 27 September 1988 at the Kasomsombu stream, a tributary of the Isombu River in Chief Mwinimalambo's area, Mwinilunga District, North-Western Province, Zambia at 11°16′S, 24°06′E, altitude 4100 ft a.s.l. The owner of the nest was not seen during the day, but at 2100 hrs the incubating bird was captured with a hand net placed over the entrance. It was a ♀ with wing measuring 66 mm and it weighed 14.1 g.

The nest site was near the ground in narrow gallery forest along the Kasomsombu stream. The nest was suspended from a drooping, leafy vine 1.2 m above sluggish, knee-high water in deep shade and well hidden under overhanging vegetation. Nearby was an old wooden footbridge leading from an abandoned garden with banana trees. The nest was bulky and broad, with a porch over the entrance. It was externally adorned with curled strips of banana bark on each side, and large leaves, especially at the rear. Rather long and coarse grass stems were also used in the construction, much of this extraneous material hanging well below the bottom of the nest chamber. The porch consisted of fine twisted stems, the roof of fine, black fibrous stems. Cobwebs were not used to bind the nest. Internally, it was lined throughout with soft, fine twisted stems. The distance from the attachment to the vine to the base of the nest was 18 cm, but some external material reached 34 cm below the vine. The nest proper was 10 cm wide at the face and 9 cm from front to back; the extraneous material extended the width to 19 cm. The entrance was 42 mm in diameter, the lower lip being 84 mm above the base of the chamber. Internal dimensions were approximately 9 cm high and 4 cm wide.

The nest contained 2 eggs (small to medium-sized embryos), their combined weight being 3.9 g. The eggs measure 19.6 × 13.9 and 18.3 × 13.6 mm, and are regular ovals, without gloss. Rather beautiful, they are difficult to describe. The ground is a warm, pinky-brown, densely marked all over by irregular streaks of a darker shade of purplish-brown. The general appearance is smudgy puce or dull claret. These eggs are not strictly *erythristic* as they lack the bright pink or rosey hues usually apparent in eggs so described.

Discussion

N. bannermani was formerly considered as conspecific with the Green-headed Sunbird *N. verticalis* (e.g. Chapin 1954, Mackworth-Praed & Grant 1963, 1973); according to Hall & Moreau (1970) these 2 sunbirds together with *N. oritis* and *N. alinae* constitute a superspecies.

The present record appears to be the first description of the nest and eggs of *N. bannermani*. *N. verticalis* has been recorded breeding in

Zambia from December to May (R. J. Dowsett), but previously, the only indications of breeding dates for *N. bannermani* have been birds with active gonads in March and September (Benson *et al.* 1971). Descriptions of the nests and eggs for the other 3 species are to be found in Mackworth-Praed & Grant (1973). Nests of *N. verticalis* found by Sir Frederick Jackson and G. L. Bates are more fully described in Bannerman (1948) where, not surprisingly, they differ little from the present record. The 2 montane forest species, on the other hand, *N. oritis* and *N. alinae*, use moss (with other materials) in the construction of their nests (Mackworth-Praed & Grant 1973), a feature which is lacking in those built by *N. verticalis* and *N. bannermani.*

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Report on the birds collected during the Armour-*Utowana* West Indian Expeditions

by Donald W. Buden

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During the early 1930s, the Museum of Comparative Zoology, Harvard University (MCZ) acquired specimens (chiefly molluscs, reptiles and birds) collected in the West Indies during cruises of the research yacht *Utowana*. Thomas Barbour, then Director of the MCZ, was present on some of the cruises as a guest of the ship's owner Allison V. Armour. Barbour (1945) remarked that more than 22 published reports had been based on collections from *Utowana* expeditions.

Ornithological material from these voyages includes fossils obtained by Froelich Rainey in the Bahamas for Yale University. These have been reviewed by Wetmore (1938) and by Olson & Hilgartner (1982). No study skins from the *Utowana* expeditions are among specimens of Bahaman birds at the Yale Peabody Museum, and there is no record indicating that any accompanied the Rainey material (E. Stickney). However, 221 study skins taken in 1933 and 1934 largely by James C. Greenway, Jr. were deposited in the MCZ. One *Calliphlox evelynae lyrura* and 2 *Mimus*

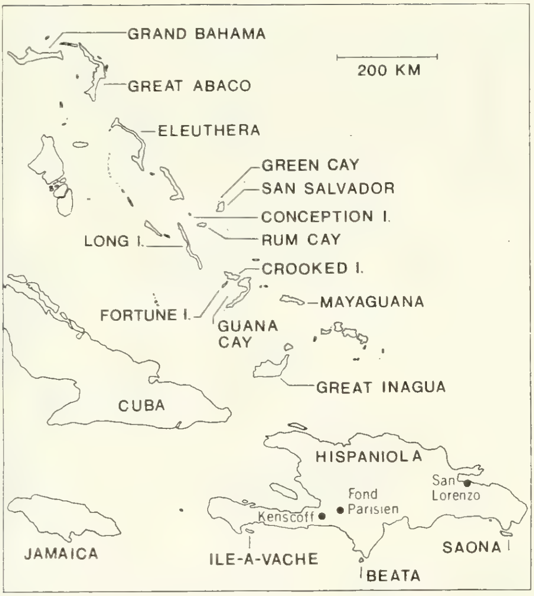
GRAND BAHAMA
200 KM
GREAT ABACO
ELEUTHERA
GREEN CAY
SAN SALVADOR
CONCEPTION I.
LONG I.
RUM CAY
CROOKED I.
MAYAGUANA
FORTUNE I.
GUANA CAY
GREAT INAGUA
CUBA
HISPANIOLA
San Lorenzo
Fond Parisien
Kenscoff
JAMAICA
ILE-A-VACHE
SAONA
BEATA

Figure 1. Map showing islands in the Bahamas and the Hispaniolan region mentioned in the text.

gundlachii gundlachii subsequently were sent to the Paris Museum. The 169 Bahaman-Hispaniolan specimens, which, for the most part, have not been reported on previously are the main subject of the present study. Collecting localities are shown in Fig. 1.

The 134 specimens collected in 1933 by J. C. Greenway, Jr (MCZ 157689–822) include 66 (16 species) taken in the Bahamas (17–26 February) on San Salvador, Crooked I., Fortune I. (=Long Key), Mayaguana and Great Inagua, along with 16 (6 species) from Haiti at Kenscoff (1 March) and near Fond Parisien (3 March) and 52 (10 species) from the Colombian islands Providencia (=Old Providence) and San Andrés (=St Andrews). Greenway (1933) described *Dendroica petechia armouri* from specimens collected on Providencia. Bond & Meyer de Schauensee (1944), reviewing the avifauna of both Providencia and San Andrés, reported briefly on all of Greenway's material from these 2 islands, relying apparently on data furnished by James L. Peters.

Among the 87 specimens collected in 1934, 57 representing 23 species were taken in the Bahamas (7 February–28 March) on Grand Bahama, Great Abaco (written Abaco I. on labels and in the catalogue), Eleuthera, Long I., Conception I., San Salvador (=Watlings I.), Green Cay (north of San Salvador), Rum Cay, Crooked I., Guana Cay (in the Bight of Acklins), and on Great Inagua. The 30 others (18 species collected 6–12 April) are from Hispaniola (San Lorenzo at Samaná Bay) and the satellite islands Saona, Beata and Ile-à-Vache. MCZ catalogue numbers for this collection are 160921-964 (specimens from the Hispaniola and satellite islands, from Grand Bahama on 23 March, and from Green Cay), 269642 (*Pandion haliaetus* from Long I.) and 331727 (*Loxigilla violacea* from Eleuthera). Barbour & Shreve (1935) give an itinerary of this cruise. The Bahaman birds were collected by J. C. Greenway Jr, and Helen Greenway and Thomas Barbour. The Greenways were not present on the Hispaniolan leg of the 1934 voyage and no specific collector is named for those specimens, the museum labels and catalogue bearing the notations "Utowana Exp. 1934" and "skinned by MCZ staff".

The names and sequences of species in this account follow the American Ornithologists' Union (1983) Check-list. Museums and collections are abbreviated as follows: AS = Albert Schwartz Collection (now at LSUMZ); FMNH = Field Museum of Natural History, Chicago; LSUMZ = Louisiana State University Museum of Zoology; UMRC = University of Miami Reference Collection; USNM = National Museum of Natural History, Washington. Many of the museum labels on the *Utowana* specimens have information on reproductive condition and these data are available from the author on request. Locality records for specimens collected in the Bahamas are summarized in Table 1 and those from Hispaniola and its satellite islands are in Table 2. The more noteworthy records are discussed in greater detail below.

AUDUBON'S SHEARWATER *Puffinus lherminieri*

A male collected on Green Cay in March (presumably when the *Utowana* was at San Salvador on 27 and 28 March) is the first record for the island. Olson *et al.* (in press) report fossils of this species from San Salvador. The species is known to breed on small cays widely in the Bahamas (Brudenell-Bruce 1975, Buden 1987a,b), though no breeding sites have been reported for either Green Cay or San Salvador (see Sprunt 1984).

WEST INDIAN WHISTLING-DUCK *Dendrocygna arborea*

One downy-young, ♀, (total length of skin 215 mm from tip of bill to rump) collected in March on the 1934 expedition is the only record for Crooked Island. The *Utowana* was in the Crooked-Acklins area 1–6 March.

OSPREY *Pandion haliaetus*

All the specimens are examples of the resident subspecies *P. h. ridgwayi* (Maynard). One ♀ collected on Long Island (the back of the museum label reads "E. Booby Cay"), 23 February 1934, was on a nest containing one egg. One ♂ taken on Mayaguana 24 February and another on 25 February 1933 are the first records for that island. A ♂ was collected on Crooked Island on 20 February and another on 21 February 1933, the only earlier record being a bone fragment reported on by Wetmore (1938).

AMERICAN KESTREL *Falco sparverius*

One labelled "[♂]" was collected on Saona on 8 April 1934. The breast is white throughout in this specimen (MCZ 166706), thus resembling that of pale-phase *F. s. sparveroides* Vigors from Cuba more closely than that of *F. s. dominicensis* Gmelin from Hispaniola. In 10 MCZ pale-phase

TABLE 1

Birds collected in the Bahamas on the Utowana expeditions. Numerals indicate numbers of specimens; an asterisk (*) indicates specimens collected in 1933, all others are 1934. Islands are listed in geographic sequence, roughly northwest to southeast and abbreviated as follows: GB = Grand Bahama, GA = Great Abaco, EL = Eleuthera, LG = Long island, CN = Conception Island, RM = Rum Cay, SS = San Salvador (including also the satellite islet Green Cay for one record of *Puffinus lherminieri*), CR = Crooked Island (including also the satellite islet Guana Cay for one record of *Zenaida aurita*), FO = Fortune Island, MA = Mayaguana, GI = Great Inagua

	Locality										
Species	**GB**	**GA**	**EL**	**LG**	**CN**	**RM**	**SS**	**CR**	**FO**	**MA**	**GI**
Tachybaptus dominicus							1				
Puffinus lherminieri							1[a]				
Dendrocygna arborea								1			
Pandion haliaetus				1				2*	1*	2*	
Rallus longirostris							1				
Haematopus palliatus											3*
Zenaida aurita	1					1	1	1[b]			
Tyto alba								1*			
Athene cunicularia			1								
Chlorostilbon ricordii	1	1									
Calliphlox evelynae			4	2				7*	1*		5*/2
Melanerpes superciliaris	3						6*				
Picoides villosus	4										
Contopus caribaeus	1										
Tachycineta cyaneoviridis		4									
Polioptila caerulea										2*	1*
Mimus polyglottos		1		2							1*
Mimus gundlachii			2		1		4*	1*		3*	
Margarops fuscatus						1	2*				
Vireo crassirostris			4								1*
Dendroica petechia					2		3*			1*	
Geothlypis trichas							2*				
Geothlypis rostrata			1								
Coereba flaveola			3	1			2*	2*	1*		
Spindalis zena										1*	
Tiaris bicolor	1		3					1*	1*	1*	4*
Loxigilla violacea			1								3*

[a] Green Cay, a tiny islet about 2 km off the northwestern coast of San Salvador.

[b] Guana Cay, a tiny islet in the Bight of Acklins, on the Crooked-Acklins Bank and south of Crooked Island.

♂♂ from Cuba, the breast is completely white or has one or more small patches of buff colour, whereas all 8 MCZ ♂♂ from Hispaniola have some buff colour on the breast, and this usually richer and more extensive than in those from Cuba. A dark (= rufous) morph is common in Cuba, but all specimens reported from Hispaniola are pale-phase, though Bond (1980) remarked that "a rufous morph has been observed once or twice in Haiti and Jamaica". The specimen from Saona is slightly paler on the dorsum (more yellowish-brown, less reddish-brown) than are most of the Cuban and Hispaniolan specimens.

The Saona specimen wing measures 181.0 mm, the tail 112.4 mm. For the 10 ♂♂ from Cuba, the mean ±1 SD wing length is 179.3±3.8 (176.0–187.0), and mean tail length is 113.6±2.8 (109.8–118.0) mm; the 8 ♂♂

TABLE 2

Birds collected on Hispaniola and satellite islands on the *Utowana* expeditions. Numerals indicate numbers of specimens; an asterisk (*) indicates specimens collected in 1933, all others are 1934. F = near Fond Parisien, K = Kenscoff, L = San Lorenzo at Samaná Bay.

	Locality			
Species	**Hispaniola**	**Saona**	**Beata**	**Ile-à-Vache**
Falco sparverius		1		
Sterna maxima			2	
Zenaida aurita			3	
Columbina passerina			1	
Coccyzus minor			1	
Crotophaga ani		2		
Anthracothorax dominicus	1*K			
Todus subulatus	2 S			
Melanerpes striatus	6*F			
Myiarchus stolidus		3		
Tyrannus dominicensis		2	3	
Corvus palmarum	5*K			
Mimus polyglottos		2		
Margarops fuscatus			1	
Setophaga ruticilla	2*K			
Coereba flaveola	1*K			1
Microligea palustris	1 S			
Phoenicophilus palmarum	1 S			
Tiaris olivacea	1*K			
Quiscalus niger			1	
Icterus dominicensis		1		

from Hispaniola measure 184.9±4.2 (180.0–192.0) and 118.7±2.4 (115.1–122.6) mm, respectively.

Mensurally and chromatically, the specimen from Saona is closer to *sparveroides* than to *dominicensis*; however, as it is near or at the extremes in variation of Hispaniolan *dominicensis* in both size and coloration, and in view of the close proximity of Saona to Hispaniola and the much greater distance to any known population of *sparveroides*, I believe this specimen is better treated as a variant of *dominicensis* than as a vagrant of *sparveroides*.

BARN-OWL *Tyto alba*

A ♀ collected on Crooked Island, 20 February 1933, almost certainly is the specimen in the photograph selected as a frontispiece by Barbour (1943). I know of no other firsthand report of *T. alba* from Crooked, except that I collected one there (LSUMZ 71160, sex unknown) on 8 April 1972.

Bond (1956) included all the Bahaman populations of Barn-Owl under the name *Tyto alba lucayana* Riley. According to Ridgway (1914), *lucayana* differs from *T. a. pratincola* (from eastern, continental North America) in having more ochraceous buff and less distinctive white specks on the dorsum, smaller dusky spots on inner webs of outermost primaries, and larger feet. But these are at best slight and average differences if evident at all. I found no appreciable differences in size of feet between Bahaman and continental samples, neither visually nor in the measurement length of hind claw. In my samples, Bahaman birds averaged slightly smaller than the supposedly larger continental birds—4 ♂♂ and 4 ♀♀ from the Bahamas, 19.7 and 20.4 mm, respectively; 7 ♂♂ and 5 ♀♀ from North Carolina, Louisiana, Alabama, and Florida (all LSUMZ and MCZ), 20.2 and 21.1 mm, respectively.

The Bahaman birds tend to be paler (on tail, wings, dorsum and border of facial disc), on the average, than do those from the continent. But among 8 ♂♂, 6 ♀♀ and 5 unsexed specimens from Florida (4 MCZ, 15 UMRC), at least 4 ♂♂ and one ♀ match extremely well 4 ♂♂, 4 ♀♀ and 2 unsexed specimens from the Bahamas (3 AS, 1 FMNH, 2 LSUMZ, 2 MCZ, 2 USNM). Two ♂♂ from Louisiana (LSUMZ 2404, 32233) are paler even than most of the specimens from the Bahamas. Also, Bangs (1900) reported that in a letter pertaining to the identification of 2 Barn-Owls taken on New Providence in 1897, Ridgway wrote "We can match your two Bahama specimens exactly with some in our [USNM] series from Washington, Arizona, etc.; we also have a Bahama skin very much resembling yours".

In the absence of any demonstrable mensural differences between the Bahaman and continental birds, and as the differences in coloration are slight and are not constant, I recommend merging *T. a. lucayana* Riley with *T. a. pratincola* (Bonaparte).

WEST-INDIAN RED-BELLIED WOODPECKER *Melanerpes superciliaris*

3 ♂♂ of *M. s. bahamensis* (Cory) were collected on Grand Bahama, 23 March 1934. Short (1982) claimed *M. s. nyeanus* (Ridgway) from San Salvador "are a trifle longer billed and a bit paler below, averaging less black on the head of the males but otherwise seem identical with Grand Bahama specimens, and the latter do not merit separate status nomenclaturally (as '*bahamensis*')". But among *M. superciliaris* in the MCZ collection, those I examined from San Salvador (3 ♂♂, 2 ♂♂?, 2 ♀♀) have more and brighter yellow on the venter, more white (less grey) on the head, and brighter red nasal tufts than do those from Grand Bahama (7 ♂♂, 1 ♂?, 4 ♀♀), and are eminently distinct from the Grand Bahama birds.

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Avian body weights from the lower Rio Xingu, Brazil

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From 13 August to 30 September 1986, we surveyed the avifauna of the east bank of the lower Rio Xingu (3°39′S, 52°22′W) from an encampment 52 km SSW of Altamira, Pará, Brazil, as part of a biological survey of the region sponsored by the Academia Brasileira de Ciências. The purpose of this paper is to present data on the body weights of birds sampled from populations at this locality. Some data of this type from eastern Amazonia are scattered among recent publications (e.g. Oren 1987), but most of these deal only with selected species. None of the older works on birds of the lower Rio Xingu mentions body weights (Snethlage 1913, Griscom & Greenway 1941).

Three major terrestrial habitats occur naturally along the lower Rio Xingu: **(1)** *seasonally flooded forest*; **(2)** *terra firme forest*; **(3)** *successional island scrub*. A fourth habitat type, agricultural clearing and man-caused secondary growth, was restricted to small scattered patches near the river on the east bank. We used mist-netting as well as straight observation, and collected some specimens. A network of trails (10+ km) radiating from the base camp was cut through virgin forest and secondary growth. Mist-nets (12 m) were set using standard techniques in selected sites in all 'mainland' habitat types. 12–30 mist-nets ($\bar{x} = 22$) were maintained throughout the survey period, for a total of 1056 net/days. More than two-thirds of the field observation time (288 hrs) was spent in seasonally flooded and terre firme forest. 263 species were recorded during the survey. Based on the cumulative curve of species added over 48 survey days, we estimate that from 300–310 species were resident within 10 km of our base camp.

Below we present body weight data by sex for 750 individuals of 201 species. For reference, 62 species observed but not collected are listed in the Appendix. Voucher specimens were deposited in the National Museum of Natural History (Smithsonian Institution) and the Museum of Zoology, University of São Paulo. Weights of birds (including gut contents) were taken soon after death with Pesola spring scales for 5, 10, 30, 50, 100 and 300 g and with a 10 kg spring scale. Weights up to 10 g were rounded to the nearest 0.1 g, those from 10 to 300 g to the nearest 1.0 g, and those above 300 g to the nearest 5.0 g. Because our spring scales measure weights but read in grams (unit of mass), we use the familiar term 'weight' while presenting the figures in grams.

These weight data include species that have small geographic ranges (e.g. *Penelope pileata, Gypopsitta vulturina, Pyrrhura perlata, Neomorphus squamiger, Lophornis gouldii*) or are rare and poorly known (e.g. *Synallaxis cherriei, Simoxenops ucayalae, Hylopezus berlepschi, Conopophaga melanogaster, Taeniotriccus andrei*). Also noteworthy are data for large-bodied species that are rarely weighed in the field (e.g. *Phalacrocorax olivaceus, Cathartes melambrotos, Leucopternis schistacea, Psophia viridis*). Notes on the taxonomy and distribution of selected species will be published elsewhere.

Taxonomy of the species arrangement below follows Morony *et al.* (1975). Numbers in parentheses equal sample size for a particular weight class. [a]Collected on the east bank of the Rio Iriri near the confluence of the Rio Xingu and Rio Iriri (Iriri Camp, 85 km SW Altamira, 3°50′S, 52°40′W).

Tinamus major: ♂ 1050
Crypturellus variegatus: ♂♂ 310, 365
Phalacrocorax olivaceus: ♂♂ 1400, 1450
Ardea cocoi: ♀ 2100
Cathartes melambrotos: ♂ 1650
Harpagus bidentatus: ♂ 165
Accipiter superciliosus: ♂ 67
Leucopternis schistacea: ♀ 455
Daptrius americanus: ♂ 510
Falco rufigularis: ♂ 125
Ortalis motmot: ♂ 345
Penelope pileata: ♂ 1100; ♀ 1420[a]
Crax fasciolata: ♀ 2280
Odontophorus gujanensis: ♂ 380
Psophia viridis: ♀ 1170[a], 1200[a]
Aramides cajanea: ♂ 420; ♀ 350

Vanellus cayanus: ♂ 72, 73; ♀ 79
Phaetusa simplex: ♀ 240
Columba plumbea: ♂ 132; ♀ 126
Columbina passerina: ♂♂ 24 (2); ♀ 28
Leptotila verreauxi: ♂ 140
Leptotila rufaxilla: ♂♂ 115, 135, 162, 167; ♀♀ 122, 128, 137, 145
Geotrygon montana: ♂♂ 86, 105
Ara ararauna: ♀ 995
Ara macao: ♀ 1040
Ara severa: ♀ 285
Aratinga leucophthalmus: ♀♀ 145, 148
Aratinga aurea: ♂ 94
Pyrrhura perlata: ♂♂ 70, 80
Pyrrhura picta: ♂♂ 46, 47, 51; ♀ 48
Brotogeris chrysopterus: ♂♂ 68, 72; ♀♀ 58, 59
Gypopsitta vulturina: ♂♂ 138, 150; ♀ 142
Pionus menstruus: ♂ 215
Amazona ochrocephala: ♂ 535; ♀ 505
Piaya cayana: ♂ 92
Crotophaga major: ♂♂ 170, 200
Neomorphus squamiger: ♂ 340[a]
Otus choliba: ♂ 123; ♀ 125
Otus watsonii: ♂♂ 115 (2), 116, 122; ♀♀ 127, 141
Ciccaba virgata: ♂ 240
Lurocalis semitorquatus: ♂ 60
Nyctiprogne leucopyga: ♂♂ 23, 24 (2), 27; ♀♀ 23 (2), 26
Nyctidromus albicollis: ♂♂ 49, 53, 54
Nyctiphrynus ocellatus: ♂ 35; ♀ 39
Caprimulgus nigrescens: ♀♀ 33, 38, 40
Hydropsalis climacocerca: ♂♂ 39, 41, 54, 55; ♀♀ 35, 47
Glaucis hirsuta: ♂♂ 5.6, 6.0, 6.3, 6.5
Threnetes leucurus: ♂♂ 4.8, 5.4
Phaethornis superciliosus: ♂♂ 4.5, 4.6 (2), 4.8, 4.9, 5.0 (3), 5.5; ♀♀ 4.2, 4.5, 5.6
Phaethornis ruber: ♂ 2.3; ♀ 2.3
Campylopterus largipennis: ♀ 7.0
Lophornis gouldii: ♀ 2.4
Thalurania furcata: ♂♂ 4.0, 4.1 (2), 4.3; ♀♀ 3.3, 3.4, 3.8, 4.1, 4.2
Polyplancta aurescens: ♂ 6.0
Heliothryx aurita: ♂ 4.5
Trogon viridis: ♂ 81; ♀ 87
Chloroceryle amazona: ♂ 116; ♀ 105
Chloroceryle americana: ♂ 24
Chloroceryle inda: ♂♂ 41, 51; ♀ 50
Chloroceryle aenea: ♂ 11
Momotus momota: ♂ 148
Galbula albirostris: ♂♂ 20, 21 (2), 23 (3), 24 (2); ♀♀ 21 (2), 22
Galbula ruficauda: ♂ 22 (2); ♀♀ 20, 22
Galbula dea: ♂♂ 30, 39
Jacamerops aurea: ♂ 73
Notharchus tectus: ♀ 30
Malacoptila rufa: ♂♂ 39, 44; ♀♀ 40, 43
Monasa nigrifrons: ♂♂ 68 (2), 71, 75; ♀♀ 75, 77
Monasa morphoeus: ♂ 77; ♀ 87
Chelidoptera tenebrosa: ♂♂ 34, 36
Pteroglossus bitorquatus: ♀ 120
Pteroglossus aracari: ♂♂ 237, 272
Ramphastos vitellinus: ♀ 317
Ramphastos tucanus: ♂♂ 555, 570
Picumnus aurifrons: ♂ 9.1
Veniliornis affinis: ♂ 30
Piculus flavigula: ♂♂ 64, 68; ♀ 63
Celeus flavus: ♂♂ 105, 114

Dryocopus lineatus: ♂ 174
Campephilus rubricollis: ♂ 207
Dendrocincla fuliginosa: ♂♂ 37, 43 (3), 44 (3); ♀♀ 29, 35, 36
Dendrocincla merula: ♂♂ 28, 31, 32 (2), 35, 36, 38, 43; ♀♀ 29, 33, 34
Deconychura stictolaema: ♀ 13 (2)
Sittasomus griseicapillus: ♂ 17; ♀ 11
Glyphorhynchus spirurus: ♂ 14, 15, 16 (2), 17 (4), 20; ♀♀ 13, 15, 21 (2)
Nasica longirostris: unsexed 82
Xiphocolaptes promeropirhynchus: ♂ 111; ♀ 102
Dendrocolaptes concolor: ♂♂ 50, 52, 58, 62; ♀♀ 52 (2), 64, 66, 67
Dendrocolaptes picumnus: ♂ 77
Xiphorhynchus picus: ♂♂ 34, 35, 36; ♀♀ 34, 35, 38
Xiphorhynchus obsoletus: ♂♂ 27, 30; ♀♀ 24, 26, 30 (2)
Xiphorhynchus spixii: ♂♂ 30 (2); ♀♀ 30, 31, 32
Xiphorhynchus eytoni: ♂♂ 61 (3), 64, 65; ♀♀ 45, 50, 53, 55
Campylorhamphus procurvoides: ♀♀ 38 (2)
Furnarius figulus: ♂ 28
Synallaxis gujanensis: ♂19
Synallaxis rutilans: ♂ 14; ♀♀ 17 (2), 19
Synallaxis cherriei: ♂ 16
Simoxenops ucayalae: ♂ 39 (placed in *Philydor* by Morony *et al.* 1975)
Philydor erythrocercus: ♂♂ 24 (2); ♀♀ 18, 20, 21 (2), 22
Philydor pyrrhodes: ♂ 33; ♀ 24
Automolus infuscatus: ♂♂ 35, 36, 37, 41; ♀♀ 32, 34
Automolus rufipileatus: ♂♂ 36, 38 (3); ♀ 31
Xenops minutus: ♂♂ 9.3, 10.0 (2), 11 (2); ♀♀ 8.8, 9.0, 9.9
Sclerurus mexicanus: ♂♂ 20, 21, 22 (2); ♀♀ 21, 27
Sclerurus caudacutus: ♂♂ 34, 35; ♀ 35
Cymbilaimus lineatus: ♂♂ 31, 36
Taraba major: ♂ 57
Sakesphorus luctuosus: ♂♂ 31, 34 (2); ♀♀ 28 (2), 32, 33
Thamnophilus schistaceus: ♂♂ 19, 20; ♀ 21
Thamnophilus amazonicus: ♂♂ 15, 19 (3), 22; ♀♀ 17 (2), 21
Pygiptila stellaris: ♂♂ 19, 23; ♀♀ 21, 23, 24
Thamnomanes caesius: ♂♂ 13 (4), 14, 15 (2), 16 (4); ♀♀ 13 (3), 14 (2), 15 (3), 18
Myrmotherula brachyura: ♀ 7.5
Myrmotherula surinamensis: ♂♂ 7.2, 8.0, 8.2; ♀♀ 7.8, 8.0
Myrmotherula hauxwelli: ♂♂ 8.4 (3), 9.0, 9.5; ♀♀ 8.7, 9.2 (2), 9.6
Myrmotherula leucophthalma: ♂ 9.6; ♀♀ 8.0, 10.2
Myrmotherula ornata: ♂♂ 8.6, 9.0, 9.5 (2); ♀ 9.3
Myrmotherula axillaris: ♂♂ 6.1, 6.6, 7.0, 7.2; ♀♀ 7.0, 7.3
Myrmotherula longipennis: ♂ 8.0; ♀♀ 7.4, 8.4, 8.6
Myrmotherula menetriesii: ♂♂ 8.6, 9.0; ♀ 9.0
Herpsilochmus rufimarginatus: ♂ 10.0; ♀ 11
Cercomacra nigrescens: ♂♂ 15, 16 (5), 18, 19, 21; ♀♀ 14, 15, 16
Pyriglena leuconota: ♂♂ 26 (3), 29 (2), 30, 31, 34, 36; ♀♀ 24, 27 (2), 28 (2), 30
Myrmoborus leucophrys: ♂♂ 18, 21; ♀ 17
Myrmoborus myotherinus: ♂♂ 15 (2), 16, 18; ♀ 17
Hypocnemis cantator: ♂♂ 10 (2), 11 (2), 12; ♀♀ 10, 11
Hypocnemoides maculicauda: ♂♂ 11, 12 (4), 13; ♀ 12
Sclateria naevia: ♀ 22
Percnostola leucostigma: ♂♂ 22, 24, 25 (2), 26; ♀♀ 21, 22, 23
Hylophylax naevia: ♂♂ 9.5, 11 (4), 12; ♀♀ 10, 11, 13
Hylophylax punctulata: ♂♂ 9.4, 9.8, 11; ♀♀ 12, 13
Hylophylax poecilonota: ♂♂ 14, 16 (2); ♀♀ 14 (2), 15, 16 (2), 17
Phlegopsis nigromaculata: ♂♂ 40, 42, 46, 48, 49; ♀♀ 36 (2), 37, 41, 43 (2)
Formicarius colma: ♂♂ 38, 39, 40 (2), 46, 47; ♀♀ 41, 44, 48
Formicarius analis: ♂♂ 45, 50, 57; ♀ 54
Grallaria varia: ♂ 121; ♀ 98
Hylopezus berlepschi: ♀ 39
Conopophaga aurita: ♂♂ 22, 25; ♀♀ 20, 24
Conopophaga melanogaster: ♂ 42

Lipaugus vociferans: ♂♂ 68, 80; ♀♀ 75, 77
Pachyramphus marginatus: ♂ 18
Pachyramphus minor: ♀ 32
Cephalopterus ornatus: ♂ 705; ♀♀ 380, 405
Pipra rubrocapilla: ♀ 10
Pipra fasciicauda: ♂♂ 11, 12 (3), 13 (4), 14 (5), 15 (3), 16 (3), 17 (3); ♀♀ 11, 12 (3), 13 (5), 14 (5), 15 (7), 16 (4)
Heterocercus linteatus: ♀♀ 16, 20
Knipolegus orenocensis: ♂♂ 19, 21; ♀ 18
Megarhynchus pitangua: ♂ 63
Myiarchus ferox: ♂♂ 22, 24; ♀ 17
Attila spadiceus: ♀ 33
Attila cinnamomeus: ♂ 38; ♀ 35
Rhytipterna simplex: ♀ 29
Empidonax euleri: ♂ 12
Terenotriccus erythrurus: ♂♂ 6.0, 6.3, 6.5
Onychorhynchus coronatus: ♂♂ 12, 13 (2), 14 (2)
Platyrinchus platyrhynchos: ♂♂ 11, 12; ♀ 11
Tolmomyias sulphurescens: ♂ 11; ♀♀ 12, 13
Tolmomyias poliocephalus: ♂♂ 10, 11
Tolmomyias flaviventris: ♂♂ 9, 10, 11; ♀ 11
Rhynchocyclus olivaceus: ♂♂ 21, 22; ♀♀ 18, 22
Todirostrum maculatum: ♂ 6.8; ♀ 7.5
Snethlagea minor: ♂♂ 6.0, 6.9, 7.0, 7.6; ♀♀ 6.0, 6.8, 7.0
Taeniotriccus andrei: ♂♂ 8.0, 8.6, 8.8, 9.6
Myiornis ecaudatus: ♂ 4.3; ♀ 4.8
Capsiempis flaveola: ♂ 8.0
Inezia subflava: ♂♂ 6.0, 7.3; ♀ 7.0
Camptostoma obsoletum: ♂ 7.5; ♀ 8.0
Tyranniscus gracilipes: ♂ 8.0
Pipromorpha oleaginea: ♂♂ 7.6, 8.5, 9.0, 9.5, 9.9; ♀♀ 7.1, 8.0, 8.3, 9.6
Pipromorpha macconnelli: ♂♂ 11 (3), 12, 13 (2); ♀ 11
Corythopis torquata: ♀ 13 (placed in Formicariidae by Morony *et al.* 1975)
Campylorhynchus turdinus: unsexed 38
Thryothorus coraya: ♂ 19; ♀ 19
Thryothorus leucotis: ♂♂ 16 (2), 18, 19; ♀ 16
Microcerculus marginatus: ♂ 17; ♀♀ 14, 17
Turdus fumigatus: ♂♂ 60, 67; ♀♀ 53, 59, 72
Turdus albicollis: ♂♂ 36, 39, 47; ♀♀ 39, 46
Ramphocaenus melanurus: ♂ 7.6; ♀♀ 7.8, 8.4, 8.6
Polioptila plumbea: ♀ 6.8
Oryzoborus angolensis: ♂♂ 11 (2), 12; ♀ 10
Arremon taciturnus: ♂♂ 21 (2), 22 (2), 23, 24, 25, 26; ♀♀ 18, 23, 25
Paroaria gularis: ♂♂ 22, 23; ♀♀ 19, 25, 27
Saltator maximus: ♂♂ 33, 38, 40, 41; ♀♀ 35, 41, 43, 45
Pitylus grossus: ♂♂ 22, 23; ♀♀ 19, 25, 27
Passerina cyanoides: ♂♂ 21 (2), 22, 23 (4), 25 (2); ♀♀ 22, 24, 25, 26
Hemithraupis guira: ♂♂ 11 (2), 12
Tachyphonus cristatus: ♂ 23
Tachyphonus rufus: ♀ 36
Habia rubica: ♂ 32
Ramphocelus carbo: ♂♂ 20, 21, 22, 24 (2), 25; ♀♀ 20, 22, 23, 25, 26
Thraupis palmarum: ♂ 32
Euphonia violacea: ♂ 14; ♀ 14
Tangara mexicana: ♂ 21
Phaeothlypis rivularis: unsexed 11
Granatellus pelzelni: ♀ 11
Coereba flaveola: ♀ 8.8
Hylophilus brunneiceps: ♂♂ 8.0, 11; ♀ 8.0
Psarocolius decumanus: ♂ 232
Gymnostinops yuracares neivae × *G. bifasciatus*: ♂♂ 290, 385, 445; ♀♀ 184, 210, 215
Cacicus cela: ♂ 98

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Appendix

Species recorded on the east bank of the Rio Xingu from 13 August to 30 September 1986 but not collected.

Tinamus guttatus
Anhinga anhinga
Butorides striatus
Egretta thula
Pilherodius pileatus
Mycteria americana
Mesembrinibis cayennensis
Cairina moschata
Sarcoramphus papa
Coragyps atratus
Cathartes aura
Elanoides forficatus
Ictinia plumbea
Buteo magnirostris
Leucopternis albicollis
Buteogallus urubitinga
Pandion haliaetus
Daptrius ater
Polyborus plancus
Mitu mitu
Heliornis fulica
Actitis macularia
Sterna superciliaris
Rynchops niger
Anodorhynchus hyacinthinus
Ara chloroptera
Graydidascalus brachyurus
Amazona farinosa
Crotophaga ani
Pulsatrix perspicillata
Nyctibius griseus
Chaetura cinereiventris
Panyptila cayennensis
Anthracothorax nigricollis
Hylocharis cyanus
Trogon melanurus
Trogon violaceus
Ceryle torquata
Bucco capensis
Piculus chysochloros
Campephilus melanoleucos
Cranioleuca gutturata
Cotinga cayana
Tityra semifasciata
Tityra inquisitor
Tyrannus melancholicus
Myiozetetes similis
Pitangus sulphuratus
Pitangus lictor
Myiobius sp.
Tachycineta albiventer
Progne chalybea
Atticora melanoleuca
Volatinia jacarina
Dacnis cayana
Dacnis flaviventer
Cyanerpes sp.
Tachyphonus luctuosus
Thraupis episcopus
Cyclarhis gujanensis
Molothrus bonariensis
Icterus cayenensis

Geographic variation in the Rufous-webbed Tyrant *Polioxolmis rufipennis*, with description of a new subspecies

by Jon Fjeldså

Received 22 June 1989

The Rufous-webbed Tyrant *Polioxolmis rufipennis* (previously in *Myiotheretes* or *Xolmis*—see Smith & Vuilleumier 1971, Traylor 1977, Lanyon 1986) is a large and conspicuous tyrant flycatcher inhabiting the high Andes of Bolivia and Peru. Although recorded only from few and widely scattered localities, no geographic differentiation has been noted. Zimmer (1937), in his review of Peruvian fluvicoline flycatchers, did not comment on this species, and it is currently recognized as monotypic (Traylor 1979).

In connection with a general study of the population structures of bird species associated with high-elevation remnant woodlands in Peru and Bolivia I examined the great majority of museum specimens of the Rufous-webbed Tyrant, and was surprised to find a clearcut geographic differentiation. This pattern is described here, together with a few biological data on this poorly known bird.

Materials

This study is based on the field experience from travels together with Niels Krabbe and others in 1983/84 and 1987, and on studies of museum specimens by myself.

Examined specimens were birds collected in 1983, -87, -89 for the Zoological Museum, University of Copenhagen (ZMUC), and study skins from: the Academy of Natural Sciences, Philadelphia (ANSP); American Museum of Natural History, New York (AMNH); British Museum of Natural History, Tring (BMNH); Carnegie Museum, Pittsburgh (CMP); Field Museum of Natural History, Chicago (FMNH); Institut Royal des Sciences Naturelles de Belgique, Bruxelles (IRSNB); Louisiana State University Museum of Zoology, Baton Rouge (LSUMZ); Musee de Histoire Naturelle, Paris (MHNP); Museo de Historia Natural de la UNMSM, "Javier Prado", Lima (MHNJP); and the Swedish Museum of Natural History, Stockholm (SMNH). (This species was lacking in some other institutions visited.) Altogether 74 specimens were examined. Measurements taken were exposed culmen, tarsus, wing length (cord), tail length and width of the dark distal tail-bar (measured from the narrowest point, parallel with the shaft, to the distal feather edge, and on the outer rectrix). The wing formula and outline of the dark pattern on the outer tail-feathers were recorded. Capitalized colour names refer to a direct comparison with the colour standards of Ridgway (1912).

Distribution and habitat requirements

In **Peru**, specimen records are from the West Andes in Cajamarca (Huacraruco, Hacienda Taulis, Sendamal and near Celendin), La Libertad (Huamachuco, Quirivilca), Ancash (above Huaylas, Quebrada Pucavado, Rio Pumamarca), Lima (upper Santa Eulalia Valley and Hortical in the Cañete drainage) and Ayacucho (Pampa Galeras, Quebrada Queñua); in the **Central Andes** in Amazonas (Atuén), La Libertad (Tayabamba), Pasco and Junin (Huanuco mountains, Chipa, east of Concepción above Huariaca), Huancavelica (Huancavelica) and in Apurimac (Pomayaco, Runtacocha, Chipimarca); and in the **East Andes** in Cuzco (Cachupata, Abra Malaga, Patallacta) and Puno (Checayani). Sight records from other places in Lima, western Ayacucho and Puno are given in Fjeldså (1987). R. A. Hughes has a sighting as far south as Cruz de Condor in Arequipa.

Bolivian specimen records are from western Oruro (Carangas near Nevada Sajama), in the Cordillera Real of La Paz (4 road km W Pongo, 10 miles N Viloca) and Cochabamba (Choro in Ayopaya), in sheltered valleys along the watershed of the Tunari range in Cochabamba and in the rainshadow of central Cochabamba (Cochabamba, Cerro Blanco, above Tutimayo, Colomi, Salto Pampa, Tiraque, Incachaca, Parrasco near Lopez Mendoza, Cuchacancha) and Samaipata in adjacent Sta Cruz. The species is also recorded in Potosi (Finca Salo, Oploca).

Typically in Peru it occurs at around 4000 m on slopes with light *Polylepis* woodlands surrounded by puna grassland and rocky terrain with occasional cacti, scrubs and *Puyas*. Often the territory includes high rock-walls and narrow rocky ridges adjacent to *Polylepis* patches. In the breeding season, the species seems to be narrowly restricted to the edges of *Polylepis* woods or to areas with scattered, park-like *Polylepis* vegetation, sometimes with the giant bromeliad *Puya raimondii* admixed. In most of Peru, these woodlands are isolated well above the cloud and elfin forests. On the Pacific slope, the *Polylepis* habitats usually lie near the upper fringe of the zone of frequent mists, but well above the relict patches of true cloud forest and also somewhat isolated from shrub-steppe habitats. This isolation of the breeding habitat may be a main reason for the apparent specialization of the Rufous-webbed Tyrant to *Polylepis* woodlands (see Vuilleumier's (1986) view of the evolution of specialization to *Polylepis* in birds).

In Cochabamba in Bolivia most records of Rufous-webbed Tyrants are at 3000–3800 m, from places where the *Polylepis* grows interspersed in a more varied scrubby vegetation, with small acacia-like trees and *Barnadesia* scrub. The valleys in this southern part of the range have a vegetation continuum from lower-temperate thorny scrub mixed with *Polylepis* to pure *Polylepis* shrub on the edge of the Altiplano. The Rufous-webbed Tyrant may hardly reach elevations with pure *Polylepis* stands, maybe because these habitats are, in general, biologically very poor.

The only nest of the Rufous-webbed Tyrant found (15 February 1987, with 2 fledglings) was in a tiny patch of *Polylepis* trees in a small stream ravine on a puna slope. It was a rather flimsy and open cup of stalks and thin twigs placed just below the top of a 5 m-tall tree overhanging the stream.

The Rufous-webbed Tyrant hunts hovering, like a kestrel, or using hanging hover on aerial updraughts (Fjeldså & Krabbe in press). A bird may also watch from a conspicuous perch in a bush-top or a projection on a rocky slope or rock-wall, to glide down to take prey from the ground. In open country it sometimes watches from hummocks and makes short runs and sallies. The need for updraughts and elevated hunting posts may be a main determinant of its selection of rocky walls and ridges in the rolling grasslands and semideserts characterizing the high Andes. However, it is difficult to see how *Polylepis* trees as such can have any significance in relation to the feeding ecology. Thus, although the species seems to have developed a very strong (if not total) attachment to *Polylepis* stands for breeding, it probably roams some distance away from these woodlands when not breeding. Many specimen records from the dry non-breeding season are from places with fields, xeric stream valleys and from humid treeline habitat around 3000 m—in Peru at Huacraruco, Atuén, Pomayaco and Cachupata, and in Bolivia where there are records from humid montane forest habitat at Aduana above Incachaca.

The sparse records of the Rufous-webbed Tyrant to a considerable extent may be a result of a paucity of observations in its steep and difficult habitat. Even in the most suitable habitat, the species holds large territories, and has a very low population density. Many *Polylepis* patches are isolated by tens of kilometers from the next patch. However, the long wings and good flying powers of the Rufous-webbed Tyrant (Fitzpatrick 1985), and its ability to leave the core habitat at least seasonally, should permit some gene-flow contact between local populations. The species must be expected to have been much more widespread previously than today, since the patchiness of forest habitats in part results from human activity, from pre-Incaic times up to the present (Ansion 1986, Fjeldså 1987).

Character variation

Measurements. The sexual dimorphism in measurements is slight through Peru, but increases southwards. For the West Andes from Cajamarca to Lima, the mean wing length of 7 ♂♂ is 131.9, of 6 ♀♀ 128.9 mm; 15 Bolivian ♂♂ have the mean 124.1, 15 ♀♀ 116.3 mm; for the isolated southernmost site, Oploca, 2 ♀♀ have wings 101.5 and 104 mm, 2 ♂♂ 124 and 125 mm. A similar variation is found in other measurements, males being slightly larger than females, a difference that is most pronounced furthest south. The material is insufficient for a sex-separated analysis of character variation; however, it is worth noting that the male: female ratio of museum specimens examined is 0.65 for the Peruvian material, 1.36 for Bolivian material.

The local variation in wing- and tail-length is given in Table 1. Other measurements show a similar pattern of differentiation. Clearly, birds from the northern part of the range average largest (despite the low fraction of males in the data), those from the East Andes zone of Bolivia small. There is much individual variation in southern and central Peru.

Omitting 4 specimens from near the borderline (3 from Puno, 1 from Oruro), the average wing-length, with standard deviation, is 129.1,

TABLE 1
Local variation in wing and tail length (mm), and width of the tail bar (mm), in the Rufous-webbed Tyrant *Polioxolmis rufipennis*

	n	Wing	Tail	Tail bar
Cen. Andes of Amazonas + Libertad	2	131, 133	92, 93.4	23.5, 24
W. Andes of Cajamarca + Libertad	10	129.4–133	86.2–99	17.5–24.7
Ancash to W Ayacucho	8	127–135	92–97	19–28
Pasco, Juin + Huancavelica	4	128–132	91.3–96.8	19.5–23
Apurimac	6	120–130.5	95.5–110.5	22–25
Cuzco	3	126.5–130	88.5–97	19–23
Puno	3	117–131	?	6–8
W. Oruro	1	134	96.2	18
E. Cordilera of N. Bolivia	6	119.2–126.5	85.9–90	6–18
Tunari area	11	113–126.2	84–90.6	9–16
Lower Cochabamba	11	112.5–128	83–88.8	11–16
Potosi	4	101.5–125	88–91.5	11–16

s.d. ± 3.5 mm for Peru, 120.5 ± 6.2 mm for Bolivia. The calculated joint non-overlap for the 2 series is 82% for the wing-length (82% for ♂♂, 87% for ♀♀), 90% for tail length. Comparing birds from the West Andes with those from the East Andes of Bolivia, there is no overlap at all. The wing formula did not show clearcut regional differences.

Colours. Bill and feet are black (gape pale olive towards flesh), the eyes brownish white to pale grey-brown (unlike the dark-eyed *Myiotheretes* and *Cnemarchus*, though a fledgling had dark brown eyes, with yellow mouth and cutting edges of both mandibles). The plumage is generally dark sooty grey, lightest below, becoming pinkish buff on the central belly and vent; the underside of wings and tail are extensively cinnamon-rufous, except for a dark distal bar and dark central pair of tail-feathers. The juvenile plumage (3 specimens, January–February) is slightly warmer hued, the throat less clearly streaked, but the breast appearing slightly spotted, owing to a faint buffy tinge on the feather edges.

There is an absolutely constant geographic difference. Peruvian birds (and the one from western Oruro) were deep neutral grey above, giving a very uniform, smooth, bluish slaty impression. All Bolivian birds and specimens from Puno Peru (Azangaro) are slightly lighter and duller grey, as if slightly tinged brownish, and the feathers of the breast often have definitely lighter, more buffy feather-sides causing faint streaking. This state is approached only in juvenile birds from Peru.

The tail-bar (as defined in the introduction) is 17.5–30 mm wide (mean 22.0, s.d. ± 3.0 mm) in most of Peru, against 6–16 (18) mm (mean 12.1 ± 2.9 mm) in Puno and Bolivia (Table 1). Variations in the outline of the bar (e.g. whether the dark colour curves up along the shaft or inner edge of the feather, or not) do not follow a geographic pattern.

Discussion

The character expression is fairly constant in northern Peru and southwards in the West Andes, while birds from the East Andes zone of Bolivia show other character states (with a greater variance owing to more marked sexual dimorphism). Birds from Apurimac to Puno in southern Peru show somewhat variable size; however, if also the colouration is considered, the differentiation is very abrupt. Regarding the width of the tail-bar, only one bird from Cordillera Real in La Paz (bar 18 mm wide) causes overlap with birds from north of the Raya pass between Puno and Cuzco. Three birds from Puno are transitory by size, but have narrow tail-bars. Birds from Cuzco show slightly narrower tail-bars than those from further north. Gene flow could be expected to take place easily all the way along the East Cordillera from La Paz to Cuzco.

The variation is not simply correlated with climate, as both morphological groups range from semi-humid to arid climates. Considering the dispersal potential and lack of particularly large range disjunctions in southern Peru (except probably on the Pacific slope), the pattern of differentiation is difficult to explain. As the habitat was clearly more widespread in the past than today, there is no obvious explanation in the near past. Maybe the topography and climatic oscillations, in combination, caused larger disjunctions sometimes in the far past than today. This is suggested by the phytogeographic patterns with some *Polylepis* species typical of the Peruvian cordilleras (*P. subsericans, incana* and *racemosa*), and other species typical of Bolivia and the altiplanos and southern Peru (*P. besseri, tarapacana* and *tomentella*) (see Simpson 1986 and new distributional records in Fjeldså 1987). However, a specific scenario of differentiation is difficult to hypothesize before the population structure has been worked out for additional *Polylepis*-adapted birds.

I will classify the populations as follows:

Polioxolmis rufipennis rufipennis Taczanowski, 1874 Proc. Zool. Soc. London: 134 Maraynioc, Peru. Type formerly Warshaw Museum, now lost.

Diagnosis. Large (wing 120–135 mm, mean 129.1, s.d. ±3.5 mm), above Deep Neutral Grey to Slate Colour, slightly lighter below, but on the whole appearing very uniform dark, almost bluish. Dusky tail-bar wide, 17.5–30 mm on the outer rectrix.

Range. Locally distributed in the temperate zone of the West and Central Cordilleras of the Andes from Lambayeque, Cajamarca and Amazonas in the north to Cordillera Vilcabamba in Cuzco, and on the west slope very locally south of Lima to Arequipa, Peru, and at Carangas near Nevada Sajama in western Oruro, Bolivia.

Polioxolmis rufipennis bolivianus subsp. nov.

Type. SMNH Stockholm A561808, leg. 13 June 1938 by A. M. Olalla, on Cerro Blanco (3800 m), Cochabamba, Male.

Diagnosis. Generally small (wing 101.5–131 mm; mean 120.5, s.d. ±6.12 mm), dull grey, appearing buff- or brown-tinged rather than bluish, and with the dark bar on the outer rectrix only 6–16 mm wide (measured where the bar is narrowest). The individual colour variation is slight, although some birds have conspicuously paler (more buffy) feather-edges on the breast, which gives a suggestion of spots or streaks.

Description of the type. Above Hair Brown, but remiges showing Light Drab outer webs, and thin whitish edges distally. Becomes slightly paler below, with Pallid Drab-Grey supralore and streaks on the Light Mouse Grey throat; darkest zone of breast Mouse Grey, with indications of lighter and buffier feather-edges centrally, lower belly and vent buffy white. Under wing-coverts Pinkish Buff, remiges and rectrices Cinnamon (inclining towards Avellaneous) with dusky distal bar, which is c. 11.5 mm wide on the right outer rectrix, but diffusely demarcated (the left outer rectrix has a malformation distally). Culmen 19.4 mm, tarsus 27.8 mm, wing cord 124.3 mm, tail 90.6 mm.

Other specimens examined. 12 in AMNH, 6 in ANSP, 5 in CMP, 6 in MHNP, 3 in LSUMZ, 3 in MHNP, 3 in SMNH. Compared with 43 specimens of the nominate subspecies in AMNH, ANSP, BMNH, CMP, FMNH, IRSNB, LSUMZ, MHNJP and ZMUC.

Range. Puno in southeastern Peru and into Bolivia, along the East Cordillera of La Paz to the Tunari Range of Cochabamba; also in semiarid central Cochabamba and into adjacent Sta Cruz, and by Oploca in Potosi.

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Habitat and distribution of the Rock-loving Cisticola *Cisticola aberrans* in Serengeti National Park, Tanzania

by Neil Stronach

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The Rock-loving Cisticola *Cisticola aberrans* has a wide range in Africa (Hall & Moreau 1970). It has specialized habitat requirements and consequently is local within much of its known range (Britton 1980, Mackworth-Praed & Grant 1960). Schmidl (1982) traced only 2 published records of the species in Serengeti National Park (SNP), Tanzania, but between 1985 and 1987 I found it to be quite common in its preferred habitat there. This paper describes its status and aspects of its habitat preferences in SNP. Descriptions of the natural features of SNP have been reviewed by Sinclair & Norton-Griffiths (1979).

All parts of SNP were visited. Observations were made opportunistically and no formal survey was undertaken. *C. aberrans* was easily located and identified by its call. Most individuals could be approached closely enough to be identified by plumage characters, but the combination of call and habitat was usually sufficient. SNP is within the range of *C. a. emini* as shown by Hall & Moreau (1970).

Mackworth-Praed & Grant (1960) and Britton (1980) emphasize the scantiness of vegetation in the rocky habitat of *C. aberrans* in East Africa. On the contrary, observations in SNP indicate that the species is confined to rocky places where the vegetation usually is rather plentiful. Most records were from rocky hills, but in northwestern SNP and near Seronera it was found among kopjes. The kopjes referred to in this paper are also known as boulder inselbergs, or tors, as defined by Gerrard (1988), though some include features resembling domed inselbergs and castle kopjes. *C. aberrans* was also noted in extensive thickets of *Croton dichogamus* and *Acacia brevispica* on the eastern scarp of the Magogwa Hills after fire had removed grass from the rock outcrops that are its usual habitat in that area.

On hills, *C. aberrans* occupied extremely broken ground, with boulders forming a scree on steep slopes, or rock outcrops and cliffs, more or less overgrown with grass, bushes and small trees. Even very small rock outcrops or cliffs were suitable. It preferred areas where there was grass growing between the boulders. The grass was usually *Loudetia* sp. with the leaf canopy 0.5 m to 0.75 m high, and flowering culms extending to above 1 m in height.

The steep slopes of hills in SNP are more or less covered with woody vegetation. Characteristic species of tree are *Combretum molle, Commiphora trothae* and *C. africana, Acacia* spp. (particularly *A. gerrardii* and *A. nilotica*), *Dombeya rotundifolia* and *Lonchocarpus eriocalyx*. In many places these form open woodland, particularly on the steepest slopes where the effects of fire and browsing animals have been less severe. Around rock outcrops *Cordia ovalis, Ziziphus mucronata, Euclea divinorum, Grewia* spp. and *Rhus natalensis* form small thickets.

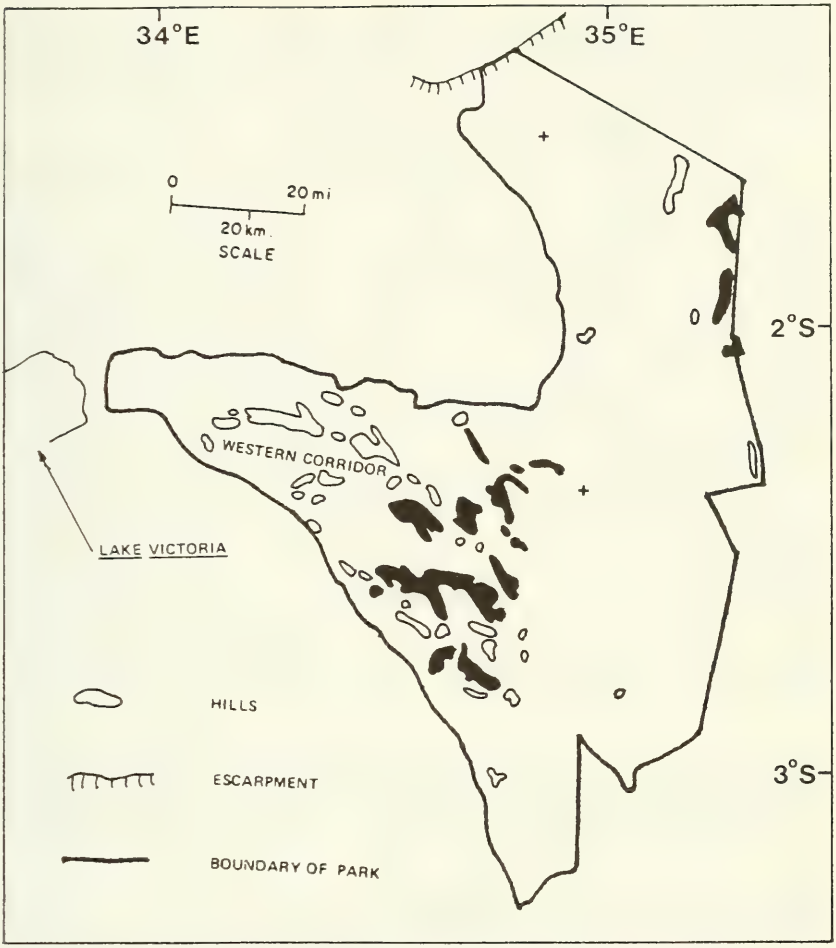

Fig. 1. Map of Serengeti National Park, showing the distribution of hills. Hills on which *C. aberrans* was recorded are shaded black. Kopjes on which *C. aberrans* was recorded are marked +.

Near Seronera *C. aberrans* was found on kopjes with steep screes of large boulders. Tall *Loudetia* grew between the boulders but there were few bushes or trees. In northwestern SNP *C. aberrans* occupied kopjes on ridgetops, with tall *Loudetia* and *Hyperthelia dissoluta* growing thickly between the large boulders at their bases. Large trees of *Ficus* sp., *Combretum molle* and *Terminalia mollis*, and thickets of *Grewia* sp., *Rhus natalensis* and other shrubs were prominent on and around the kopjes.

C. aberrans was observed to use all strata of the vegetation from bare rock surfaces to mature tree canopies. It spent most time in the grass layer and among bushes, particularly *Commiphora trothae*, which was usually conspicuous in the hills. After fires had burnt most of the herb layer in the dry season, *C. aberrans* moved to small remnants of cover that had escaped burning, usually around rock outcrops or on cliffs. Such remnants are found on most hills in SNP, even after the most severe fires, and were seen to be used as refuges by *C. aberrans*.

C. aberrans' habitat in SNP approximates to that occupied by the species in Zambia (Benson *et al.* 1973) and Malawi (Benson 1944), in contrast to other East African populations (Mackworth-Praed & Grant 1960, Britton 1980), which occupy areas of bare rock with scant vegetation, and for the species in South Africa (McLachlan & Liversidge 1978), where it inhabits rank vegetation along streams.

Fig. 1 shows the localities where *C. aberrans* was located. Most of the hills in southwestern SNP have steep escarpments, often with a line of rock outcrops and cliffs near their summits. On these hills *C. aberrans* was common, its habitat being linear in distribution and in some cases more or less continuous for several kilometres. On other hills, including some in the Western Corridor, there are no steep escarpments and there are fewer outcrops of rock. In these hills small populations of *C. aberrans* may be present but remain unrecorded. On the lower slopes of escarpments, the woodland was occupied by the Rattling Cisticola *C. chiniana*. In the open woodland and scattered tree grassland of the flatter hilltops *C. chiniana* and the Croaking Cisticola *C. natalensis* were characteristic. Some small hills are rocky to their summits and there *C. aberrans* dominated. The Issuria Escarpment, on the northwestern boundary of SNP, was not investigated. The habitat there appears ideal for *C. aberrans* and Finch (1987) recorded the species a short distance along the escarpment in Kenya.

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The nest of the Mountain Firetail *Oreostruthus fuliginosus* Estrildidae) in Papua New Guinea

by Clifford B. Frith & Dawn W. Frith

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The Mountain Firetail *Oreostruthus fuliginosus* is a large (13 cm long) and stout olive-brown estrildid finch with the sides of its breast, flanks, lower rump and upper tail coverts blood red and a bill colour that is variable but is basically blackish-red above and dull reddish below. It is found in the high mountains of the Central Ranges of the island of New Guinea at altitudes between 2200 and 3650 m, more usually above 2800 m, where it occurs singly or in pairs and sometimes in small groups in gaps in montane forest, along road edges and at the timberline. A bulky, domed, nest containing 2 young of this species was found in mid-April above 2700 m on Mt Albert Edward (Donaghey 1968), but almost no details were given. Nothing else of the biology of this interesting monotypic species is known save that it eats grass seeds, fruits and insects and may occur deep in forest as well as at its edge (Rand & Gilliard 1967, Goodwin 1982, Beehler *et al.* 1986). For detailed descriptions of morphology and distributions the reader is referred to the above sources.

Our incidental observations were made during other ornithological research in the Tari Gap forests (05°57′S, 143°10′E) of the Southern Highlands Province of Papua New Guinea at an altitude of c. 2650 m during the periods 8 September–29 October 1986, 14 October–5 December 1987 and 19 December 1988–10 February 1989 (Frith & Frith 1987, 1988a,b,c, 1989). The habitat here is mossy mixed beech forest (Saunders 1965) with abundant Pandanus Palms *Pandanus tectorius* in the canopy and subcanopy (see plate in Frith & Frith 1988c).

At 09.10 on 11 September 1986 a Mountain Firetail was seen flying with a piece of long fine nest material in its bill into the 10.7 m high (out of reach) crown centre of a Pandanus Palm situated on a steep ridge well within undisturbed dense forest.

At 08.00 on 22 October 1987 a Mountain Firetail was seen flying with a dead leaf in its bill from the forest/grassland edge into a 6.7 m high Pandanus Palm crown centre to add it to a globular nest, which could be seen to have a mossy top, but which could not be more closely examined.

On 31 December 1988 at 13.30 a nest was found placed between the frond bases of a Pandanus Palm crown 6.1 m above ground, the palm being 10 m into undisturbed forest from the edge of adjacent subalpine grassland. This nest contained the dried, mummified, body of a nestling with wing flight feathers and rump feathers out of pin, enabling us to identify it as a Mountain Firetail. The condition of green ferns on the outside of this nest indicated that it had been disused for no more than several weeks. Plate 3a shows the left side of this nest relative to the entrance, with the mummified nestling placed outside the entrance, and Plate 3b shows the side, or end, of the nest with the entrance hole (50 mm diameter). Plate 4a shows the nest viewed from vertically above (note that the left side is only sparsely covered by external 'decoration' (see below) because it was built hard up against the broad palm frond bases); Plate 4b is the same view but the nest roof has been cut through its length from above the entrance hole to the far end of the chamber and then pulled apart to show the composition of the roof in section and the egg chamber floor. The rear of the nest chamber roof was 50 mm thick, and just above and within the entrance hole it was 35 mm thick. The bulky and substantial rugby football-shaped nest consists of 2 fairly discrete parts, a dense and compact inner nest and a looser, sparser outer covering of predominantly green 'decoration'. The inner nest structure consists of numerous long grass blades, which were dry and broad, with a few dry leaves (up to 130 × 52 mm in size) and dry, long and narrow ginger plant leaves (up to 210 × 35 mm). The lining of the egg chamber floor consisted simply of smaller and finer grass blade pieces. There were no feathers or feather traces at all, but it is possible that any feather lining had been removed, though unlikely, since the presence of the mummified nestling rather excludes any disturbance of the nest. Immediately on the outside of the inner nest were numerous large pieces of dry Pandanus Palm fronds and dry leaves and fern frond pinnae with dry, long lengths of straw-like grass blades loosely and sparsely woven about the entire structure. Immediately outside this layer was the external 'decoration' of much fresh, green 'comb-toothed' fern fronds, some small filmy-fern fronds, a few bits of green moss and a good deal of fine and supple brown-yellow epiphytic orchid stems, one or two of which still had a few small fresh green leaves attached. The word 'decoration' is not used literally, as the external fresh green vegetation may be cryptic in function or have some other significance.

The above nest of the Mountain Firetail is unlike those of its closest relatives the firetail finches of the genus *Emblema*, including *Zonaeginthus* (Goodwin 1982), in being much more substantial, more elongate than round, of far larger and coarser materials and, in addition, covered externally with fresh green ferns and mosses common to its nesting habitat. The nest entirely lacks an entrance tube, unlike all other firetails except the divergent Painted Finch *E. picta* (Immelmann 1982, Goodwin 1982), and was not built into surrounding branches and foliage but was built upon and between the bases of Pandanus Palm fronds, with which tree the Mountain Firetail appears to have a close nesting association, at least in the Tari Gap area.

Acknowledgements

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First specimens of *Drymophila devillei* from Colombia

by Douglas F. Stotz

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Hilty & Brown (1986) note the occurrence of the Striated Antwren *Drymophila devillei* in northern Ecuador and suggest that it might occur in adjacent Colombia in Putumayo or Amazonas. The Field Museum of Natural History contains 2 unpublished specimens of *D. devillei* from Putumayo that confirm this prediction. One, a male, was collected by Arturo Pazos on 7 October 1967 at Guascayaco. This locality was not located by Paynter & Traylor (1981), but was thought to be close to Mocoa (1°09'S, 76°37'W). The other specimen is a female collected by Kjell von Sneidern. The tag now accompanying the bird gives no date and only 'Putumayo' as a locality. Based on the collector's number and the specimen's presence in a collection of birds that are otherwise all from San Antonio Guamuez, it appears that this specimen was probably obtained at San Antonio Guamuez (0°31'N, 76°45'W) on 30 October 1969. Incidentally Fitzpatrick & Willard (1982) reported other significant records in von Sneidern's collection from San Antonio Guamuez, including other first records from Colombia of *Deconychura stictolaema, Rhegmatorhina melanosticta* and *Ramphotrigon fuscicauda*.

D. devillei is primarily a bird of bamboo thickets (Parker 1982). It is therefore not surprising that von Sneidern obtained several other bamboo-favouring species at this site, including *Monasa flavirostris, Automolus melanopezus, Neoctantes niger* and *Ramphotrigon fuscicauda*.

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Taxonomy of the *Phylloscopus proregulus* complex

by Per Alström & Urban Olsson

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Pallas's Warbler *Phylloscopus proregulus* is usually divided into 3 subspecies:

(1) *proregulus* (Pallas) breeding in Siberia, northern Mongolia and northeastern China (Manchuria), and wintering mainly in southeastern China;

(2) *chloronotus* (Gray) breeding in central China and in the Himalayas west to central Nepal, where it intergrades with

(3) *simlaensis* Ticehurst, which occurs in the western Himalayas. The latter 2 are mainly altitudinal migrants (see Ali & Ripley 1973, Cheng 1987, Harrison 1982, Mayr & Cottrell 1986, Ticehurst 1938, Williamson 1967; Fig. 1).

Another form, *kansuensis* Meise (northern Gansu Province, China), has been described, but was regarded by Vaurie (1954) as synonymous with *proregulus*; Mayr & Cottrell (1986) follow Vaurie in this respect. Cheng (1987), on the other hand, treats it as a synonym of *chloronotus*. Judging from the only specimen of this form that we have seen (at the British Museum (Natural History) (BMNH), Tring; BM No. 1938.5.16.21), we agree with Cheng that it is best synonymised with *chloronotus*; Peter Colston (BMNH), who has also studied this specimen, agrees.

Cheng and Mayr & Cottrell state that *proregulus* intergrades with *chloronotus* in the eastern part of Qinghai Province, China, a statement for which we have found no support. Accordingly, we believe that the breeding range of nominate *proregulus* is geographically well separated from *chloronotus*/*simlaensis* (Fig. 1).

We have studied all 3 forms on their respective breeding grounds: *proregulus* in Siberia in 1984 and 1986 and in Manchuria in 1987 and 1988;

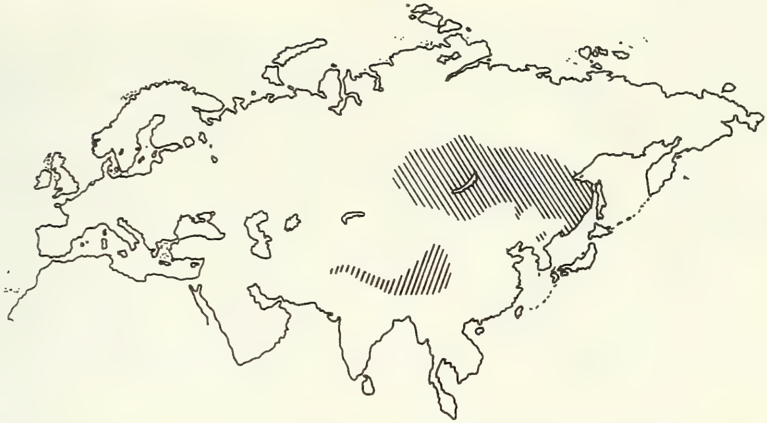

Figure 1. Distribution of (nominate) *Phylloscopus proregulus* \\\\ and *P. (p.) chloronotus* (see text) (including *simlaensis*) ////. Based on Cheng (1987), Harrison (1982) and personal experience.

chloronotus in Nepal in 1983 and in China in 1986, 1987 and 1989; and *simlaensis* in Kashmir in 1983. We are subsequently of the opinion that *P. proregulus* (*sensu lato*) should be divided into 2 species, *P. proregulus* (monotypic) and *P. chloronotus* (with subspecies *chloronotus* and *simlaensis*). Alström, Colston & Olsson (1990) indicate the likelihood of a new species, which has possibly been overlooked because of its close similarity to sympatric *chloronotus*.

Morphological differences between *proregulus* and *chloronotus/simlaensis*

Morphologically, *proregulus* and *chloronotus/simlaensis* are extremely similar. In fresh plumage, the supercilium and median crown-stripe and often also the ear-coverts, chin, throat and wing-bars are much more yellow in *proregulus*. Especially in front of and above the eye, the supercilium is generally bright yellow in *proregulus*, while it is very pale yellowish, generally looking off-white or pale buffish, in *chloronotus/simlaensis*. The supercilium also tends to be slightly broader in front of the eye in *proregulus*. Moreover, *proregulus* is slightly greener, less brownish-tinged, on the mantle when fresh, especially compared to *chloronotus*, which is also darker. In fresh plumage, *simlaensis* is more buffish below than the other 2 forms. In worn plumage the differences in colouration between the 3 forms are less obvious.

There are only slight on-average differences in the wing-formula; *proregulus* has marginally shorter 10th primary 5.5–9.0 mm > primary coverts, as opposed to 6–12.5 mm in *chloronotus/simlaensis*; in *proregulus* the 9th falls between 2nd and 4th, but in *chloronotus/simlaensis* between the tips of the secondaries and the 3rd primary, most often between the 1st and 2nd primaries (primaries numbered descendantly) (Williamson 1967 and personal measurements).

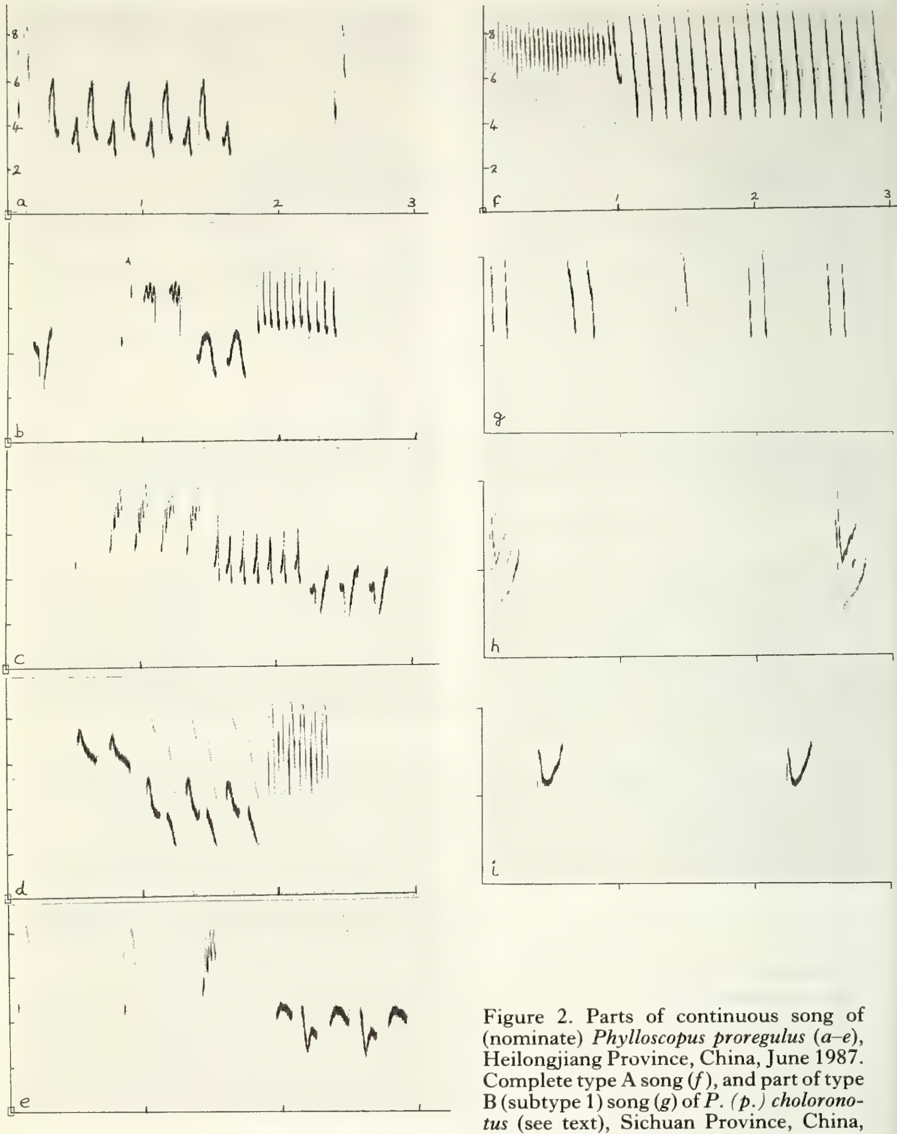

Figure 2. Parts of continuous song of (nominate) *Phylloscopus proregulus* (*a–e*), Heilongjiang Province, China, June 1987. Complete type A song (*f*), and part of type B (subtype 1) song (*g*) of *P. (p.) choloronotus* (see text), Sichuan Province, China, May 1987. Call of *proregulus* (*h*), Heilongjiang Province, China, June 1988. Call of *chloronotus* (*i*), Sichuan Province, China, May 1989.

All tape recordings by Per Alström; sonograms made by Richard Ranft, British Library of Wildlife Sounds. Band width 369 Hz. Horizontal scale gives time in seconds; vertical scale gives KHz 0–8.

TABLE 1

Response of (nominate) *Phylloscopus proregulus* and *P. (p.) chloronotus* (see text) to playback of song of each other and of *P. (p.) chloronotus* with one type of song to playback of the other type of song. A and B refer to the different types of song and a–f indicate different individuals. — = not played. The slow 'first approach' by c and e to the Type A song is explained by the long intervals in the recording used—in fact, both individuals responded the second time the song was heard. See text.

Songtype played for 2 minutes	First approach/time spent within 5 m of speaker (seconds) *chloronotus* a(A)	b(A)	c(B)	d(B)	e(B)	f(A)	*proregulus* g
proregulus	0	0	0	0	0	0	8/85
chloronotus (songtype A)	5/95	7/92	24/71	5/113	24/72	—	
chloronotus (songtype B)	—	—	—	6/96	8/102	6/98	

Vocal differences between *proregulus* and *chloronotus/simlaensis*

The song of *proregulus* is very loud, rich and varied, consisting of clear whistles and trills—somewhat reminiscent of the song of the Canary *Serinus canaria* (Figs 2a–e).

chloronotus/simlaensis has at least 2 different basic types of song. One type (A) is a drawn-out thin rattle immediately followed by a rapid series of hammering notes of the same pitch (Fig. 2f). It can be transcribed "*tsirrrrrrrrrrr-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi*". The duration is only 3–4 seconds, and it is repeated at intervals of 5–10 seconds or more. The second type (B), which is somewhat variable, is (1) a stuttering, 'endless' series of notes of alternating pitch, e.g. "*tsi tsi-tsi tsi-tsi tsü-tsü tsi-tsi tsü-tsü tsi-tsi tsi-tsi tsi-tsi-tsi tsirrp tsi-tsi tsü-tsü tsü-tsü tsi-tsi tsü-tsü-tsü . . .*" (Fig. 2g); or (2) "*tsi-tsi tsi-tsi tsü-tsü tsi-tsi tsü tsi-tsi tsidididididi tsi-tsi tsü-tsü tsi tsü-tsü-tsü tsi-tsi tsi-tsi tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi tsi-tsi . . .*", or similar. Sometimes a rattling '"*tsirrrrrr*" is admixed in both forms. Another variant on this theme is (3) "*tsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi . . . tsi-tsi . . . tsitsi-tsi-tsi-tsi-tsi-tsi-tsi-tsi . . . tsitsitsitsitsi . . . tsi-tsi. . .*". Type A has been recorded throughout the range. Of type B, (1) is the most common 'subtype' heard in China, (2) can also be heard in China but is perhaps more frequent in the western Himalayas (tape recorded by John Eames in Pakistan), and (3) has been tape recorded by Steve Madge in Darjeeling, India. Sonograms of *chloronotus*, which appear to be variants of type B, are found in Martens (1980).

Our observations of *chloronotus* in China showed that one individual male usually sings only one of the 2 types. In fact, although we strongly suspect that any male is capable of singing both types, we have no firm proof of this. However, males singing the type A song respond as vigorously to a playback of type B as to its own song and *vice versa* (Table 1).

The call of *proregulus* (Fig. 2h) is a rather faint, soft, slightly nasal "*djuee*" or, differently transcribed "*duee*". The call of *chloronotus/simlaensis* is very different, a high-pitched "*uist*" (Fig. 2i).

Playback experiments

In 1987 and 1989 we carried out a series of playback experiments in China in order to test the reactions of *chloronotus* to the song of *proregulus* and *vice versa*. Unfortunately, *proregulus* proved to be exceptionally difficult to test; only one out of some 10 singing males responded to *proregulus* song. The reason for this is *perhaps* that we were unable to elevate the speaker to anywhere near the height at which the birds were perched when singing—generally in the tops of 20–30 m high conifers.

A powerful speaker was placed 1–2 m above the ground below a tree where a territory-holding male was singing. The tape recorder was operated and the bird watched by P.A. from 10 m away from the speaker and by U.O. from approximately 25 m away. Care was taken so that P.A., who was nearer to the speaker, would not be easily seen by the bird. The tape was not played until the bird was clearly visible.

Four *chloronotus* (designated a–d), 2 at Lijiang, Yunnan Province (c. 27.5°N, 100.5°E) on 4 April 1987 and 2 on Emei Shan, Sichuan Province (29°31′N, 103°20′E) on 18 May 1987 and 10 May 1989 respectively were tested in the following way:—

(1) *proregulus* song was played for 2 minutes.
(2) This was followed by *chloronotus* song, played also for 2 minutes. The 2 males at Lijiang both sang a type A song and were exposed to this type. The individuals on Emei Shan both sang type B. To the one in 1987 type A was played, and to the one in 1989 both types were played.
(3) Immediately after *chloronotus* song, *proregulus* song was played for another 2 minutes.

A different *chloronotus* (e) with type B song on Emei Shan was tested on 14 May 1987 as follows:—

(1) First *chloronotus* type B song was played for 2 minutes.
(2) Then *chloronotus* type A was played for 2 minutes,
(3) immediately followed by *proregulus* for 2 minutes.

A further *chloronotus* (f) with type A song on Emei Shan was tested on 15 May 1987 in the following way:—

(1) *chloronotus* type B was played for 2 minutes,
(2) immediately followed by *proregulus* for 2 minutes.

One *proregulus* (g) on Changbai Shan, Jilin Province (c. 42°N, 127°E) in June 1987 was tested as follows:—

(1) *chloronotus* type B was played for 2 minutes.
(2) This was followed by *proregulus* song for 2 minutes,
(3) which in turn was immediately followed by *chloronotus* for 2 minutes, and
(4) finally another round of *proregulus*.

Results

None of the 6 *chloronotus* (a–f) showed any response at all to the song of *proregulus*, whereas they all showed strong aggressive behaviour towards the song of *chloronotus*—vigorously searching for the aggressor, flying back and forth over the speaker, usually calling frequently and occasionally singing. The single *proregulus* (g) did not respond to the song of *chloronotus*, but very strongly to the song of its own form. (See Table 1.)

Conclusion

The morphological differences between *proregulus* and *chloronotus/simlaensis* do not in themselves warrant separating them from each other. However, the very marked differences in both song and calls would seem to act as reproductively isolating mechanisms if there was any sympatry. This assumption is strongly supported by playback experiments, although a longer series of tests on *proregulus* is desirable.

Acknowledgements

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Description of a possible new species of leaf warbler of the genus *Phylloscopus* from China

by Per Alström, Peter R. Colston & Urban Olsson

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Field

On 16–17 April 1986 on Emei Shan, Sichuan Province (29°31′N, 103°20′E), U.O. noted one individual of a *Phylloscopus* warbler with a peculiar song, which reminded him of the song of *Prinia criniger*. The bird was only seen well very briefly, but it appeared to be *P. (proregulus) chloronotus*—with a previously unrecorded type of song (see Alström & Olsson 1990).

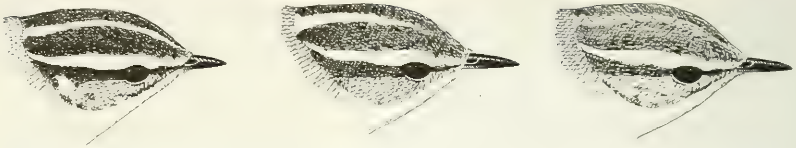

Figure 1. Heads of (Left) *P. (proregulus) chloronotus,* (Centre) '*Ph.sp.*', and (Right) *P. inornatus*. Drawing by Per Alström.

On 15 June 1988, at Western Hills, Beijing, Hebei Province (c. 40°N, 115.5°E), P.A. and U.O. observed a bird which alternated between a series of loud whistles and the *Prinia*-like song U.O. had heard on Emei Shan. This individual was also seen very poorly, but it also seemed to be *chloronotus*, which was then believed to have 4 different types of song (cf. Alström & Olsson 1990).

On 9 June 1989, P.A. and P.R.C. found a bird with the *Prinia*-like song in Jiuzhaigou, Sichuan Province (33°10'N, 104°18'E). It also had the same series of whistles that had been heard in Beijing the previous year. The bird was seen very well, and it was almost immediately realised that it was in fact not *chloronotus*, but probably an undescribed species, hereafter referred to as '*Ph.sp.*'. During the same and the following day, it was found to be rather common in one part of the area, and we heard at least 15 individuals, of which excellent views were obtained of 5. The morphological differences (see below) from *chloronotus* that we had noticed on the first individual were found to be constant. We also carried out a few vocal playback tests, which confirmed the distinctness from *chloronotus*. Unfortunately, we were unable to obtain a specimen, but it is planned to return in 1990.

MORPHOLOGICAL CHARACTERISTICS OF '*Ph.sp.*'

Basically, *Ph.sp.* is very similar to *chloronotus* and shares *chloronotus*' main features: small size; distinct head pattern, with dark lateral crown-stripes and pale median crown-stripe; distinct pale yellow rump; contrastingly dark-centred greater coverts with broad pale tips, forming a prominent wing-bar (a second, narrower wing-bar is formed by pale tips to the median coverts); and pale edges to the tertials.

However, *Ph.sp.* differs from *chloronotus* in the following respects: *Ph.sp.* is slightly larger, seemingly the same size as the Yellow-browed Warbler *P. inornatus*. Although this was apparent without direct comparison, it was confirmed when one individual *Ph.sp.* was seen together with a *chloronotus* on several occasions. The shape is also more like that of *inornatus*, i.e. slightly more elongated than *chloronotus*, with proportionately slightly longer bill and, perhaps as a result of this, a slightly less rounded-looking head.

The lower mandible shows a distinct pale base—in one individual the lower mandible was pale with only a small dark tip; *chloronotus* shows very little pale colouring.

The head patterns differ significantly (Fig. 1). In *Ph.sp.* the anterior part of the median crown-stripe is clearly more poorly marked, and when seen head-on, the crown often looks unmarked, and in one individual, the stripe itself was very faint, except posteriorly, where it formed a contrastingly pale patch. In this respect, the head pattern is reminiscent of *P. reguloides* for example. Moreover, the lateral crown-stripes are marginally paler in *Ph.sp.* The dark eye-stripe is not quite so dark as in *chloronotus*, and this in combination with slightly darker rest of the ear-coverts makes the stripe less contrasting. None of the 5 *Ph.sp.* showed the slight downward extension of the eye-stripe posteriorly as is often seen in *chloronotus*.

In *Ph.sp.* there is no trace of a dark shade at the bases of the secondaries. However, this is sometimes very indistinct in *chloronotus*.

Without specimens, it is not known whether *Ph.sp.* has a different wing formula.

If the pale median crown-stripe and yellow rump cannot be seen, the bird is more similar to *inornatus* than to *chloronotus*.

Apart from *chloronotus*, there is only one other *Phylloscopus* which closely resembles *Ph.sp.*, namely *P. subviridis* from Afghanistan and the westernmost Himalayas. However, amongst other features, this lacks a yellow rump. There is some resemblance to the sympatric *P. pulcher*, but *pulcher* shows a less distinct median crown-stripe and largely white 3 outer pairs of rectrices, and other differences.

VOCAL CHARACTERISTICS

The song (Fig. 2) is a monotonous, dry "*tsiridi-tsiridi-tsiridi-tsiridi-tsiridi-tsiridi-tsiridi-tsiridi-tsiridi-...*", which can go on for a minute or so. It resembles the song of *Prinia criniger* and is very different from the song of presumably all other *Phylloscopus* species on mainland Asia and Japan. We have field experience with the song of all those except *neglectus, fuligiventer, maculipennis, subviridis* and *cantator*, but we have listened to tape recordings by T. J. Roberts of *subviridis* and seen sonograms of all the others except *fuligiventer* (Martens 1980), and they all have very different songs from *Ph.sp.* The song of *chloronotus* is described by Martens (1980) and Alström & Olsson (1990). The song of *Ph.sp.* is usually delivered from the top of a tall spruce *Picea/Abies*.

The bird also gives a varied, irregular series of loud, clear, scolding whistles (Fig. 2), e.g. "*tueet-tueet-tueet tueet-tueet tueet-tueet-tueet-tueet ...*", "*tueet tUEE tuee-tuee-tuee-tuee-tuee-tuee-tuee-tuee-tuee-tuee-tuee-tuee*", or a hammering "*tueet tuee-tee-tee-tee-tee-tee-tee-tee-tee-tee-*". These series of whistles seem to be delivered only when the bird is agitated, and it therefore appears that this may be some sort of alarm call rather than song. These 'calls' are also different from probably all *Phylloscopus* species on mainland Asia and Japan. We did not hear any other calls.

Copies of P.A.'s tape recordings of *Ph.sp.* are kept at the British Library of Wildlife Sounds, and it is hoped that they will be published on cassette in 1990 (*East Asian Bird Voices*; Alström *in prep.*).

PLAYBACK TESTS

Three simple playback tests were carried out in Jiuzhaigou on 9 June.

The song and 'calls' of *Ph.sp.* were played to 2 different *chloronotus* (1, 2) for 2 minutes each. After this, *chloronotus* song was played. There was no response whatsoever to the *Ph.sp.* song and 'calls', but a very

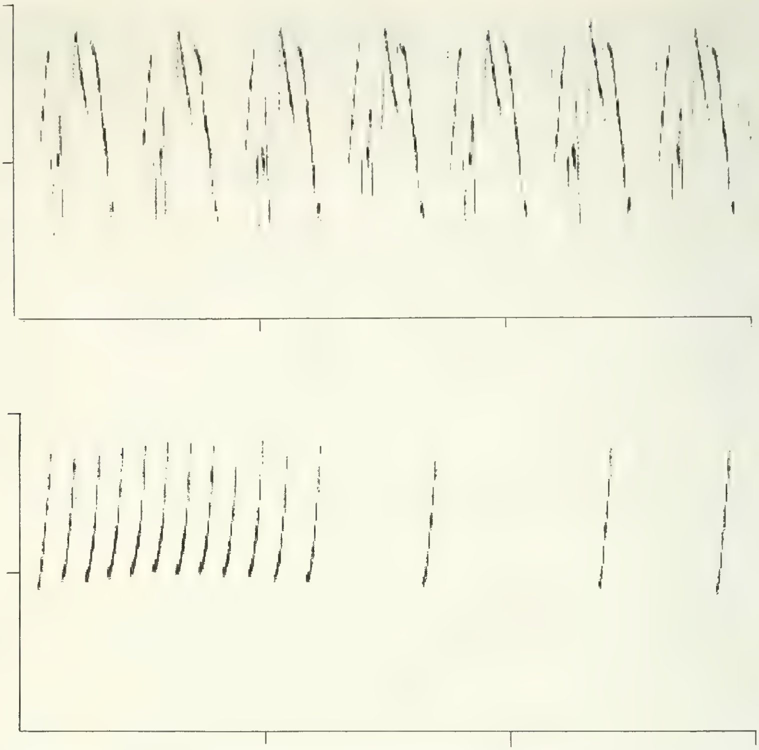

Figure 2. Part of continuous song (above) and 'call' (below) of '*Ph.sp.*'. Tape recorded by Per Alström, Jiuzhaiguo, Sichuan Province, China, June 1989. Sonogram made by Richard Ranft, British Library of Wildlife Sounds. Band width 369 Hz. Horizontal scale gives time in seconds, vertical scale gives KHz 0–8.

TABLE 1

Response of '*Ph.sp.*' and *P. (proregulus) chloronotus* to playback of song of the other form. — = not played

Playback 2 minutes	First approach/time spent within 5 m of speaker (seconds) '*Ph.sp.*'	 *chloronotus* (1)	 *chloronotus* (2)
'*Ph.sp.*'	7/104	0	0
chloronotus	0	12/98	8/99
proregulus	0	—	—

strong aggressive response to its own song—vigorous search for the aggressor, flying back and forth over the speaker, and frequently calling (Table 1).

To one *Ph.sp.* we played, in sequence, the song of *P. proregulus* (*sensu stricto*, Alström & Olsson 1990), the 2 different types of *chloronotus* song

(Alström & Olsson 1990) and both the song and 'calls' of *Ph.sp.*, each for 2 minutes. There was no response at all to *chloronotus*, but immediate strong aggressive response towards its own song (Table 1).

DISCUSSION

Although *Ph.sp.* is both morphologically and vocally clearly distinct from *chloronotus*, the ultimate proof of them being separate species is in their sympatry and lack of response to each others' songs. The only species which is morphologically very similar to *Ph.sp.* is the allopatric *P. subviridis*, but its song is extremely different, and it seems unlikely that they would interbreed if they ever met (in itself an unlikely event, since they are, as far as known, geographically separated by some 2500 km).

Considering the great morphological similarity between *Ph.sp.* and *chloronotus*, it would not be surprising if *Ph.sp.* already exists unrecognized in some museum collection(s). P.A. and P.R.C. have examined all skins of *chloronotus* in the collection at the Institute of Zoology, Academia Sinica, Beijing, of which one or two could possibly be *Ph.sp.*; but the condition of these does not permit an identification to be made. P.R.C. has examined the skins in the British Museum (Natural History), Tring without finding any suspected *Ph.sp.*

BREEDING HABITAT OF *Ph.sp.*

It appears that the favoured habitat of *Ph.sp.* is rather low deciduous secondary-growth, with some tall spruce *Abies* and *Picea* admixed. In Jiuzhaigou it was found at an altitude of c. 2400 m, at Beijing at c. 200 m, and on Emei Shan at c. 1000 m. The bird on Emei Shan sang from the same perch for 2 days and reacted aggressively towards its own song; but it was not found there on visits in mid May 1987 and early to mid May 1989, and so possibly was only a migrant, and it seems unlikely that it is breeding commonly there.

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Additional weights of Venezuelan birds

by Betsy Trent Thomas

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Body weight, or mass, of birds is considered the most stable avian measurement (Smith *et al.* 1986), and the best measure of body size (Mueller 1986). Dunning (1984) points out that mean body weight has been applied to studies of avian physiology, ecology, morphology, community structure and theoretical modelling. Many museum specimens lack weight data because large collections were made before the importance of weight was known and prior to convenient equipment for taking field measurements. While most recent specimens in museums do contain mass data, collecting has slowed greatly (Parkes 1985). Thus one certain way that researchers can obtain weight data is through live bird captures.

This paper supplements a previous report on Venezuelan bird weights (Thomas 1982). Since then various publications have given many other weights of Neotropical birds: most tanager weights are given in Isler & Isler (1987); Faaborg (1985) gives data for 129 spp; Moermond & Denslow (1985) for 82 spp.; Parker *et al.* (1985) for 35 spp.; Remsen (1985) for 92 spp; Robbins *et al.* (1985) for 193 spp.; and Wiedenfeld *et al.* (1985) for 91 spp; and Bates *et al.* (1989) for 189 species.

This paper gives 1156 weights of 123 spp. All measurements were taken between 1982 and 1985 in Venezuela from mist-netted birds. Birds were weighed, usually within 15 min of capture, on Pesola spring balances of 10, 50, 100 and 300 g and recorded to the nearest tenth of a gram for those <100 g, and to the nearest 5 g for those >100 g. Colour notes of soft parts were recorded and are available on request from the author. When samples exceed 7, the number, range, mean and standard deviations are given. Order and nomenclature follows Meyer de Schauensee & Phelps (1978).

Most birds were netted at Fundo Pecuario Masaguaral, Estado Guárico (08°31′N, 67°35′W—63 m a.s.l.). Other birds were from Los Anaucos, Estado Miranda (10°20′N, 66°50′W) at 550 m. Small numbers of birds were netted in 3 other Venezuelan states; at the War Memorial of 1817, Estado Apure (07°50′N, 68°45′W) at c. 50 m; at Km 118 on the Sta Elena road, Estado Bolivar (06°01′N, 61°25′W) at c. 1500 m; and at Rancho Grande in Henri Pittier Park, Estado Aragua (10°24′N, 67°43′W) at 1090 m.

Weights are from Masaguaral unless otherwise identified; others are from Los Anaucos (LA), Estado Apure (A), Estado Bolivar (B) and Henri Pittier Park (HP). All weights are in grams. *North American migrants, ** Austral migrants.

Eurypyga helias: unsexed 188.0
Jacana jacana: 12 unsexed 89.5–137.0 (113.96 ± 16.50)
Vanellus chilensis: 9 unsexed 225.0–284.0 (264.44 ± 19.21)
**Tringa solitaria*: 104 unsexed 31.1–65.1 (48.40 ± 8.56), March–May
**Tringa flavipes*: unsexed 74.0 /80.2 /93.0, April

**Actitis macularia*: 11 unsexed 32.9–46.0 (37.12 ± 4.00), April–May
**Calidris minutilla*: 276 unsexed 16.0–34.0 (23.20 ± 3.56), March–April
**Calidris fuscicollis*: 367 unsexed 27.5–45.7 (34.69 ± 4.55), April–May
**Calidris melanotos*: unsexed 47.3 /54.5 /57.2, April
**Calidris pusilla*: 19 unsexed 18.2–31.2 (24.46 ± 3.82), April–May
**Micropalama himantopus*: unsexed 63.2, April
**Tryngites subruficollis*: unsexed 38.1, April
Himantopus mexicanus: 8 unsexed 144.0–168.0 (154.0 ± 9.75)
Columba subvinacea: unsexed 258.0
Zenaida auriculata: unsexed 95.0 /101.0 /111.0 /114.0
Columbina talpacoti: ♂ 50.5; ♀ 55.2
Scardafella squammata: unsexed 53.0 /(A) 57.0 /58.5
Leptotila verreauxi: unsexed 155.0 /156.0 /162.0 /(LA) 148.0
Forpus passerinus: ♂♂ 24.0 /26.5
Brotogeris jugularis: unsexed 53.5 /61.3
***Coccyzus pumilus*: unsexed 33.2, April
Crotophaga sulcirostris: unsexed 53.2 /57.3
Chaetura cinereiventris: unsexed (B) 15.0 /(HP) 15.4
Reinarda squamata: unsexed 10.0
Glaucis hirsuta: (LA) 9 unsexed 5.9–7.9 (6.86 ± 0.41)
Phaethornis bourcieri: (B) unsexed 4.6
Phaethornis augusti: (LA) unsexed 4.0 /4.2 /4.2 /4.7 /5.0 /5.0
Chlorostilbon mellisugus: (LA) ♀ 2.8
Polytmus guainumbi: ♀ 4.4
Amazilia fimbriata: unsexed 5.1 /5.6 /(LA) 5.8
Heliodoxa xanthogonys: (B) ♂ 6.4
Coeligena coeligena: (HP) unsexed 8.0
Galbula ruficauda: (LA) ♂♂ 22.5 /23.0; ♀♀ 21.4 /21.5 /22.1
Hypnelus ruficollis: unsexed 40.8 /(LA) 44.8 /45.6
Picumnus squamulatus: ♀ 9.9 /(LA) ♂ 11.0
Chrysoptilus punctigula: ♀♀ 65.5 /66.5 /(A) ♂ 71.0
Melanerpes rubricapillus: ♀ 43.6
Veniliornis kirkii: (LA) ♂ 30.5
Dendrocincla fuliginosa: (LA) unsexed 37.1
Xiphorhynchus picus: unsexed 40.2 /42.2 /42.5 /43.6 /44.0 /47.0
Xiphorhynchus guttatus: (LA) unsexed 43.5 /46.0 /47.1 /48.2
Lepidocolaptes souleyetii: (LA) unsexed 21.8
Campylorhamphus trochilirostris: unsexed 42.0 /42.5 /43.8 /(LA) 33.7 /35.9
Synallaxis albescens: unsexed 13.6 /(LA) 13.4 /14.1
Certhiaxis cinnamomea: unsexed 15.3 /15.5 /15.6
Cranioleuca demissa: (B) unsexed 14.9
Phacellodomus rufifrons: unsexed 23.5 /23.6 /24.5 /24.7 /(LA) 25.5/25.8
Taraba major: (LA) ♀ 59.0
Thamnophilus doliatus: (LA) ♂♂ 23.7 /24.8 /25.0 /25.0 /26.1; ♀♀ 23.8 /25.3 /(A) ♀ 27.4
Formicivora grisea: (LA) ♂♂ 8.7 /9.0 /9.0 /9.4 /10.0 /10.1; ♀♀ 8.8 8.8 /8.8 /8.9 /9.0
Myrmeciza longipes: (LA) ♂♂ 23.9 /26.0 /26.7 /26.8; ♀ 25.3
Xenopsaris albinucha: (A) ♂ 10.2
Chiroxiphia lanceolata: (LA) ♂ 17.9; ♀♀ 18.5 /19.8
Fluvicola pica: ♂♂ 12.4 /12.7
Machetornis rixosus: unsexed 30.1 /31.0 /32.0 /33.0
Tyrannus melancholicus: unsexed 36.6 /37.0
Megarhynchus pitangua: unsexed 58.5
Myiozetetes cayanensis: unsexed 24.0 /25.4 /27.5 /29.5 /(A) 24.2 /27.4
Myiozetetes similis: unsexed 22.3 /(A) ♀ 23.2
Conopias inornata (= *Myiozetetes*): ♂♂ 27.0 /31.4 /32.5; ♀♀ 29.3 /30.1 /30.8; unsexed 25.5 /26.6 /27.1 /28.7 /(A) ♀ 26.0
Pitangus sulphuratus: unsexed 65.0
Myiarchus ferox: unsexed 26.0
Myiarchus tyrannulus: unsexed 28.3
Cnemotriccus fuscatus: (LA) 8 unsexed 10.8–12.9 (11.65 ± 0.87)
Myiophobus fasciatus: (LA) unsexed 8.2 /8.7 /9.6 /10.3 /10.5 /11.3
Tolmomyias flaviventris: unsexed 11.1 /11.2 /11.5 /12.0 /12.0 /12.3 /(A) 12.0

Todirostrum cinereum: ♂ 7.1; ♀ 6.6 /(A) ♂ 7.0
Atalotriccus pilaris: (LA) unsexed 5.8 /8.2
Euscarthmus meloryphus: (LA) unsexed 7.3
Inezia subflava: unsexed 9.4 /(A) 7.5
Elaenia flavogaster: unsexed 22.5 /25.1
***Elaenia parvirostris*: unsexed 15.0, May
Sublegatus modestus: (LA) unsexed 11.7 /12.5
Phaeomyias murina: (A) unsexed 12.4
Camptostoma obsoletum: (LA) unsexed 7.8 /8.3
Tachycineta albiventer: unsexed 17.3
Progne chalybea: unsexed 40.5
Notiochelidon cyanoleuca: (HP) unsexed 9.3 /9.4 /9.5
**Riparia riparia*: unsexed 15.0, April
**Hirundo rustica*: unsexed 17.9, April
Campylorhynchus nuchalis: unsexed 23.9
Thryothorus genibarbis: (LA) unsexed 19.7 /20.4 /20.5 /20.5 /21.2 /21.3 /21.8
Thryothorus rutilus: (LA) unsexed 15.5
Troglodytes aedon: (LA) unsexed 12.0 /13.3 /13.4
Mimus gilvus: unsexed 49.5 /56.0
Catharus aurantiirostris: (LA) unsexed 28.8
**Catharus fuscescens*: unsexed 44.4, May; (LA) 32.5, October
Turdus leucomelas: (LA) unsexed 61.5
Turdus nudigenis: unsexed 56.0 /56.5 /57.0 /58.1 /61.0 /(LA) 62.0 /68.5
Polioptila plumbea: (LA) ♂ 6.8
Cyclarhis gujanensis: unsexed 25.4 /31.6 /(LA) 24.5 /24.5 /25.0 /25.2 /26.7
Hylophilus aurantiifrons: (LA) unsexed 8.0 /8.5 /9.1
Hylophilus flavipes: (LA) unsexed 9.8 /(A) 10.0 /11.4
Molothrus bonariensis: 8 ♂♂ 45.0–61.0 (55.4 ± 5.35); ♀♀ 45.5 /48.0 /(LA) ♀ 40.5
Cacicus cela: unsexed 58.0 /63.5
Quiscalus lugubris: ♂♂ 73.4 /77.8 /81.0; ♀♀ 52.0 /53.5 /65.0
Agelaius icterocephalus: ♂ 31.0 (immature plumage)
Icterus nigrogularis: unsexed 35.9 /(A) 39.6 /42.0
Gymnomystax mexicanus: unsexed 82.5 /92.5 /94.0 /95.5 /100.0 /106.5 /(LA) 102.0
**Dendroica petechia*: unsexed 9.4, February
**Oporornis agilis*: unsexed 11.9, April
Coereba flaveola: (LA) unsexed 9.2 /9.4
Tersina viridis: (HP) ♂♂ 26.0 /27.8 /28.4
Tangara cayana: (LA) unsexed 19.5
Euphonia laniirostris: (LA) ♀ 16.0
Thraupis glaucocolpa: unsexed 31.0 /33.5 /36.5
Ramphocelus carbo: (LA) ♂♂ 23.9 /24.9
Tachyphonus rufus: (LA) ♂♂ 30.0 /30.8 /32.0 /33.3 /34.4 /34.5 /35.0; ♀♀ 33.0 /33.2 /34.1 /34.2 /36.5
Rhodinocichla rosea: (LA) ♂♂ 39.9 /43.7 /43.9; ♀♀ 37.8 /39.4 /40.6 /42.9
Cyanocompsa brissonii (=*cyanea*): (LA) ♂♂ 20.3 /21.5; ♀♀ /19.8 /20.0 /20.4 /22.0
Saltator coerulescens: (LA) unsexed 50.5 /54.0 /58.0 /65.0
Saltator orenocensis: (A) unsexed 33.3
Saltator albicollis: (LA) unsexed 35.4 /36.0 /37.4 /40.4 /40.8 /41.9 /42.0
Paroaria gularis: (A) unsexed 20.7
Coryphospingus pileatus: ♂♂ 14.3 /15.4 /(LA) ♂ 16.3
Arremonops conirostris: (LA) unsexed 28.0 /30.4 /32.0 /32.4
Arremon schlegeli: (LA) unsexed 25.1 /26.5 /27.3 /28.0
Sporophila intermedia: ♀ 12.1 /(LA) ♂ 11.6 /(A) ♂♂ 10.9 /11.8; ♀ 12.9
***Sporophila bouvronides*: (=*lineola*): (LA) ♂ 9.6, August
Sporophila nigricollis: (LA) ♂ 9.8; ♀ 9.4
Volatinia jacarina: (LA) ♀ 8.1
Sicalis flaveola: ♂ 22.0; ♀ 20.4; unsexed 19.5 /(A) ♂ 20.1
Ammodramus humeralis: (A) unsexed 14.5

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A new species of weaver from Tanzania

by N. E. & E. M. Baker

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During December 1986 a visit was made to the town of Ifakara (08°08′S, 36°40′E) in Morogoro Region east central Tanzania. Although primarily a field trip for the Tanzanian Bird Atlas, attention had been drawn by Dr Eric Burnier to a species of weaver that was reasonably common in the area, but which he could not identify. Situated on the northern bank of the

Kilombero River, Ifakara is some 320 km southwest of Dar es Salaam but lies at an altitude of only 250 m. The nearby ferry at Kivukoni is the only access to the district of Mahenge, south and east of the river, which at this point is 150 m wide in the dry season (July–October) but floods to c. 5 km wide during the rains (March–May). There are however considerable variations in rainfall and in the resultant extent of the flooding each year.

At the time of our visit, the weaver was breeding and male birds were easily located along the road to the ferry. Although distinctive, the species could not be identified in the field; mist nets were used and 5 female and 2 male birds were caught. One male and one female specimen were collected as types for a new species (Plate 1) we have named:—

Ploceus burnieri sp. nov. The Kilombero Weaver

Description. The yellow group of colours in Smythe (1975) was considered insufficient when describing these birds. The colours used are recommended by M. W. Woodcock, the artist responsible for the plates in *The Birds of Africa*.

♂ *Holotype*. Breeding ♂. BMNH Tring, No. 1989-7-1. Collected on 28 December 1986 by N. E. & E. M. Baker at Ifakara. Testes not measured. A smallish, bright yellow 'masked' weaver that is distinctive in the field. Forehead to crown golden yellow, suffused orange. Sides of face including ear coverts yellow, lacking the golden tinge of the crown. Lores to eye (but not extending above the eye) black, with a narrow edge of chestnut. 'Face mask' black with chestnut edging to below eye but not extending on to the ear coverts. Chin and throat black with a chestnut edging which extends as a narrow point onto the upper breast. Breast, belly, flanks, vent and under tail coverts deep lemon yellow. The yellow of the crown merges into a yellowish-olive nape and mantle. The rump is a clearer lemon yellow, unstreaked but with a fine greyish tip to the feathers giving a faint scaly effect, which is only noticeable in the hand. Upper tail coverts lemon yellow, somewhat duller than the underparts. The longest upper tail coverts greener. Tail uniform grey-green above with lighter edges to each feather. Rectrices rather pointed, but overall a short, dark, squared-off tail. Underside of tail pale grey with a yellowish wash.

Primaries and secondaries dark grey, narrowly edged yellow, paler on the secondaries. Tertials blackish with a greyish-yellow outer web extending to the feather tip, the innermost with the whole outer web pale greyish-yellow, and the inner web blackish with a pale yellow tip. Primary coverts dark grey with a pale yellowish-green outer edge. Greater coverts have much more yellow on the outer edge and towards the tips, forming a bright yellow 'wing bar' on the closed wing. Median coverts with tips even brighter yellow, also forming a pale 'wing bar' on the closed wing. Alula dark grey with a very faint yellow outer edge. Wing lining yellow, somewhat paler than the underparts and extending broadly on to the inner webs of the flight feathers, which are otherwise silvery-grey.

Soft parts. Bill: both mandibles entirely black. Eye: dark brown with no hint of red. Legs: dark horn.

The ♂ is mainly distinguished from other similar 'masked weavers' by the yellow, not black, forehead and ear coverts, by the chestnut edging to the black 'mask' and by the dark brown rather than pale or red eye. All breeding ♂♂ observed were alike, eliminating the possibility of this species being a hybrid.

♀ *Holotype*. ♀ in breeding plumage. BMNH Tring, No. 1989-7-2. Collected on 28 December by N. E. & E. M. Baker at Kivukoni. Ovaries not measured. A 'typical' streaked female *Ploceus* weaver that presents all the usual difficulties of identification in the field when not associating with male birds.

Forehead, crown and nape grey-green, the feathers with dark grey centres and dark greenish yellow webs. Crown somewhat darker, less green than the nape. Sides of face, ear coverts, chin, throat and upper breast pale buff, distinctly washed with rich buff on the upper breast. Mantle grey-green, the feathers with dark grey centres and pale yellowish edging. Rump somewhat less streaked than the mantle, the feathers pale grey underneath with pale, washed out, looser webs. Upper tail coverts unstreaked dark yellowish green. There are a few old feathers in the type female and the yellowish edging is reduced through wear giving the mantle a paler, less yellowish look.

Soft parts. Bill: upper mandible greyish, lower mandible pale horn. Eye: brown. Legs: dark horn.

Paratypes. Collected on 27 February 1987 by N. E. & E. M. Baker at Kivukoni for the University of Dar es Salaam. ♂ No. UDSMB-341; ♀ No. UDSMB-342.

Distribution. Known only from the type locality in the immediate vicinity of Kivukoni Ferry, although it may extend southwest into similar habitat along the Kilombero River flood plain.

Measurements of Type. ♂ wing 68 m; bill 17.2 mm; tarsus 22.2 mm; tail 45 mm; weight 20 gm. ♀ wing 62 mm; bill 15.1 mm; tarsus 19.6 mm; tail 42 mm.

Other Measurements. (See Table 1). Subsequent visits to the site were made on 27 February 1987 and 2 April 1988. A further 12 ♂♂ and 21 ♀♀ were caught and measured.

Etymology. It is a pleasure to name this species for Dr Eric Burnier, MD, who attended to the people of Ifakara and surrounding area for many years and who brought this weaver to our attention. (It is interesting to note that Dr Burnier was the first to observe the nuthatch *Sitta ledanti* in Algeria, but medical commitments delayed his announcement of this find.)

Field observations

Habitat. *P. burnieri* breeds in an extensive riverside swamp fringed with tall *Phragmites mauritianus* in the floodplain of the Kilombero River. This floodplain extends upstream into the huge Kibasira swamp of c. 4200 km^2. The unique feature of this habitat is the comparatively low altitude of the swamp combined with the distance from the coast (some 300 km). From available maps, it appears to be the only such area along the East African coast. No known botanical or ornithological work has

TABLE 1

Measurements (mm) and weights (gm) of *Ploceus burnieri*. (Range with average in brackets)

		Males		
wing	bill	tarsus	tail	weight
67–71 (68.4)	16.9–17.4 (17.2)	21–23.25 (22.2)	43–47 (45.3)	17–21.3 (19.6)
n=12	n=7	n=7	n=5	n=12
		A non-breeding (presumed immature) male		
wing	bill	tarsus	tail	weight
68	—	—	46	20
		Female		
wing	bill	tarsus	tail	weight
59–62 (60.4)	15.4–16.9 (16.0)	19.3–21.8 (20.2)	39–42 (40.3)	14.2–17.5 (16.6)
n=21	n=21	n=13	n=13	n=21

Note. Measurements were taken as follows: *Wing,* extended chord to the nearest 0.5 mm; *bill,* to the nearest 0.05 mm from the bill tip to the feathering at the point of the notch; *tarsus,* to the nearest 0.05 mm from the notch on the intertarsal joint to the last complete scale at the base of the toes; *tail,* from the upper base of the longest (central) tail feather to its tip; *weight,* with a 50 gm balance to the nearest 0.1 gm.

been conducted in either the floodplain or the swamp and the precise extent of the *Phragmites* is unknown.

The Kilombero River is fed from the Uzungwa Mountains to the northwest and west, the site of the recently discovered Rufous-winged Sunbird *Nectarinia rufipennis* (Jensen 1983) and the Njombe Highlands to the south. Both are areas of high rainfall and reach altitudes in excess of 2000 m. To the southeast and east the Mbarika Mountains and Mt Chikweta provide further rivers. To the northeast the Kilombero River joins the Great Ruaha to flow east through the Selous Game Reserve. The valley is thus isolated from the central plateau and the southern miombo habitat by high mountains.

No other *Ploceus* weavers have been observed in the nesting area with *P. burnieri*. The nearest known breeding weavers are small colonies of *P. subaureus* nesting in bamboo *Arundinaria* sp. in Ifakara township outside the swamp habitat 7 km away. From our experience in other areas, we would expect *P. subaureus* to utilise this swamp habitat, and it is noteworthy that this species does not compete with *P. burnieri* in this locality.

Nest. Sample No. N1989.2.1 held in BMNH, Tring. A 'male nest' oval-shaped, made of grass with a side entrance (Fig. 1) attached to a single reed stem of *Phragmites*. The outer structure is made from grass leaves, and leaf strips up to 4 mm wide from the same type of grass. The lining is composed of much broader leaves, from 8–12 mm wide. The nest measures 110 × 85 × 70 mm and is suspended from a stem c. 8 mm in diameter which passes vertically through the rear. The entrance is semi-elliptical, placed to one side of the nest and facing slightly downwards. Nest height was 2–3 m above ground level, but lower over water when seasonal flooding has occurred. *Phragmites* stems are strong, usually growing in a graceful downward curving arch and most nests were situated on the arch giving the entrance a more downward facing aspect.

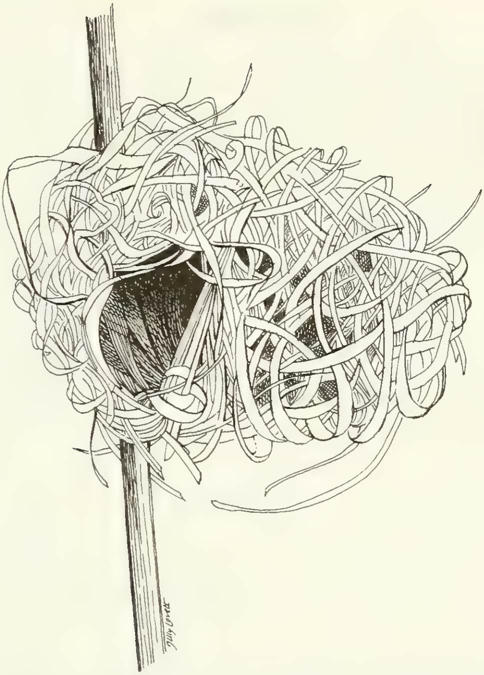

Figure 1. The 'male' nest of *Ploceus burnieri* before it is accepted and finished by the female.

Nests are loosely grouped together in a suitable site, frequently overhanging an expanse of water. The number of nests in any given area varies considerably, from a few to 20, exceptionally 30. Occasionally only a solitary nest can be found in a seemingly suitable site. As nest building progresses, seasonal flooding inundates the area making counting difficult and the number of 'male nests' in the area may increase. We have no confirmed evidence of polygyny but strongly suspect that this does occur.

Eggs. Clutch size is apparently 1–2. The eggs vary in colour from uniform olive-brown to turquoise with light brown vermiculations; the usual variation in *Ploceus* eggs would therefore seem to apply to this species. Measurements of 3 eggs randomly taken: 20.5 × 13.00 mm, 20.0 × 14.5 mm, 19.5 × 14.2 mm.

Voice. The usual weaver chattering was heard at the nest site, but a short alarm call "*tjaek*" was heard away from the nest. No satisfactory recording has yet been made.

Moult. During our visit on 27 February 1988, 13 ♀♀ caught were moulting. Moult was confined to the rectrices, secondaries, tertials and corresponding coverts, and 5 were also undergoing body moult, quite heavily in 2 cases.

Foraging techniques. The species has been observed, moving up and down the stems, feeding on flowering and fruiting grass heads, and also foraging in groups on the ground prior to flooding.

Conservation

Recent road works have destroyed several colony sites, but the habitat seems to be extensive and is largely unsuitable for agriculture (even rice) due to the extent of seasonal inundation. The reed used in all the known nest sites is only found at the fringe of the swamps and may well be of restricted distribution. There is no official protection for the Kilombero River valley but its remoteness contributes to the conservation of the area. Two new taxa of Cisticoline warblers are also being described from this habitat and the Kibasira swamp upstream of Ifakara holds the most northerly population of Puku *Kobus vardoni* in East Africa. The Coppery-tailed Coucal *Centropus cupreicaudus*, usually regarded as a highland species (Britton 1980) is a common resident along this river. It is therefore of the utmost importance that an ornithological survey of this exceptional area is conducted to determine the composition of the fauna and the extent of suitable *P. burnieri* habitat before conservation recommendations can be made to the Government of Tanzania.

Discussion

Fifty-seven taxa of Ploceus weaver were examined in the BMNH, Tring. Of these, *P. velatus uluensis, P. velatus katangae, P. intermedius, P. h. heuglini, P. taeniopterus* and *P. castanops* showed some similarities and were studied in detail. It was difficult to decide where to place *P. burnieri* and therefore which species to use for closer comparison. Although the black on the throat is extensive, it does not form a 'face mask' and the species would not appear to belong to the masked group, the closest of which are *P. taeniopterus* and *P. v. katangae,* especially with regard to the reduced amount of black on the head. If *P. burnieri* was purely chestnut on the throat, then the closest superficial resemblance would be to *P. castanops*. A recently proposed weaver from Uganda (Ash 1986) was considered to be a hybrid by Louette (1987), who raised the question of possible stable hybrid populations of *Ploceus* weavers. The large sample size of *P. burnieri* and its isolation from similar species does not suggest a hybrid population.

P. velatus uluensis, P. intermedius and *P. h. heuglini* all have black ear coverts as well as other distinct plumage differences.

P. velatus katangae has a mean wing measurement of 69 mm and has now been elevated to specific status (Louette & Benson 1982). Face mask much more extensive than in *P. burnieri*, extending to above and behind the eye and on to the forecrown. The remainder of the crown is chestnut, fading to golden yellow on the nape. Mantle rich golden-green with black shafts giving a pronounced streaked appearance. Flight feathers, broadly edged golden yellow. Upper tail coverts and rump golden yellow, much richer than those of *P. burnieri*. Underparts rich golden yellow, whereas *P. burnieri* is paler, especially on the belly and vent. Chin, throat and upper breast black, extending further than in *P. burnieri* and edged with saffron not chestnut.

P. taeniopterus. There are certain similarities with *P. taeniopterus*, especially with the nominate race. However *P. t. taeniopterus* is larger,

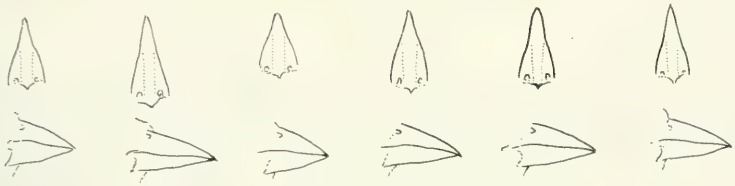

Figure 2. Bill shapes of *Ploceus* weavers. Top line from above, bottom line in lateral view. From left to right:– *velatus, castanops, galbula, subaureus, taeniopterus* and *burnieri*. Note long slender shape of *castanops*, heavier conical bill of *galbula* and the attenuated tip of *burnieri*.

with male wing length 66–78 mm (Mackworth-Praed & Grant 1960) and has a heavier more blunt-looking bill, although the basic shape is similar (cf. Fig. 2). The black on the face is more extensive than in *P. burnieri*, reaching to the ear coverts and extending to just above the eye and upper lores to forehead. The chestnut edging is brighter and more extensive around the eye, spreading onto the ear coverts and often from forehead to crown. The yellow of the crown is more orange and the yellow of the underparts and nape much darker and brighter. The mantle is washed with the same bright yellow colour as are the edges of the flight and tail feathers. The eye is given as brown (Mackworth-Praed & Grant 1973) and the legs and feet look 'varnished' brown in museum specimens.

The wing formula is similar, with only minor differences among the specimens measured. There is a considerable difference in the relative lengths of the tertials but this could be due to the condition and preparation techniques of the skins. The tertials of *P. burnieri* are only 4–5 mm shorter than the wing tip. The first primary is 10–12 mm longer than the primary coverts in *taeniopterus* and noticeably shorter than that of *P. burnieri*.

P. castanops. This species is similar, but is larger, with forecrown chestnut, pale cream eye, and chestnut, not black throat. Of the 28 specimens in BMNH, Tring, wing lengths for *P. castanops* measured ♂♂ 69.5–80.5 mm (75.0 mm), n = 18; ♀♀ 66.0–70 mm (68.0 mm), n = 8). Although the bill measurements differ only slightly, the bill is noticeably slimmer and longer (Fig. 3). It is important to note that there is no non-breeding dress in *P. castanops*, whereas *P. burnieri* ♂♂ arrive at the breeding grounds having developed varying stages of breeding dress—a few yellow feathers on the head and underparts were visible on all ♂♂ examined in October 1989. It would appear that *P. burnieri* has a non-breeding plumage resembling the female but with a brighter yellow wash. The nearest known population of *P. castanops* lies c. 800 km to the north-west on the shores of Lake Victoria. We were unable to locate a detailed description of the nest for comparison.

P. subaureus. There are no plumage similarities to *P. burnieri* but their nests are very similar. The nest of *P. subaureus* is more oval and the entrance hole is not angled downwards; however in reality the hole faces downwards because (in the localities known to us) the nests are usually placed on weaker reed stems which bend towards the ground more than the stems used by *P. burnieri*. The nest of *P. subaureus* is considerably deeper at 95 mm.

We hesitate to attempt a systematic position for this species. It may well prove intermediate between the 'Masked Weavers' and *P. castanops*, although clearly the nest is closer to that of *P. subaureus*. If the extent and depth of colour of the face mask are important in attaining specific status among competing species, then the geographical isolation of *P. burnieri* from other masked weavers may account for the reduced size of the face mask. The smaller size compared to other swamp/waterside masked weavers could also be explained by lack of competition through isolation—it seems unlikely that *P. burnieri* could have displaced the much larger *P. subaureus* from the nesting habitat. Perhaps *P. subaureus* is the more recent of the 2 species along the Kilombero valley. Bill shape and bill size differences are difficult to appreciate from measurements, but are significant in the hand (cf. Fig. 3)—Louette (1987) discusses the significance of bill shape in *Ploceus* weavers.

Acknowledgements

We wish to thank P. R. Colston, M. W. Woodcock and Dr J. S. Ash for assistance while working on these birds at the British Museum, Tring, M. W. Woodcock for his guidance regarding the use of names for colours and for the illustration and the diagram showing bill profiles. Our thanks also to Jill Lovett for her drawing of the nest, Dr E. Burnier for comments on the draft and assistance in the field, Dr M. Louette, Dr P. A. Clancey and Dr J. F. Monk for helpful comments on an earlier draft of this paper and lastly our thanks to the Ministry of Lands, Natural Resources and Tourism for permission to study and to ring birds in Tanzania.

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BOOKS RECEIVED

Cocker, M. 1989. *Richard Meinertzhagen. Soldier, Scientist and Spy*. Pp. 292. Illustrated. Secker & Warburg. £14.95. Hardback. 24 × 16 cm.

In this well written biography, Richard Meinertzhagen's enigmatic character is fittingly emphasised—a brilliant mind and great courage, ruthless but insecure, at times even self-negatory, unable in general to accept disagreement without rancour, with a frequently expressed grudge against any authority or individual with contrary views, yet capable of great kindness, generosity and friendship.

During the First World War and in the 1920s, Meinertzhagen was a man with a wide and respected international reputation both politically and militarily, particularly for his extensive experience in East Africa and the Middle East. Surprisingly, at the end of his long life—he died aged ~~86~~ 84 in 1967—few people, even in the ornithological world, would have had any significant knowledge or recollection of his past considerable importance.

Mark Cocker's study shows wide research, though regrettably almost entirely without the benefit of the views of Meinertzhagen's living friends and relatives. He takes the reader through his unhappy childhood and school days, deprived of mother love and brutally treated by a sadistic preparatory school headmaster; his dreadfully misguided first marriage; his brilliant but substantially unfulfilled military career (he retired in 1926); his outstanding ability and contributions in secret intelligence; his expertise in Middle East affairs, especially in Palestine after the First World War, at the highest level politically; his ardent Zionism, despite having for some 5 years, through personal contacts, been an admitted admirer of Hitler (including sympathy with his antisemitism); his second blissfully happy marriage, grievously ended by his wife's death in an inexplicable shooting tragedy; his absorbing love of solitude and space; the deep loss of his beloved eldest son at the age of 19 at Arnhem; and his friendships, "my most precious possessions".

During all his years since early childhood, Meinertzhagen's pursuit of ornithology was a paramount need, even in war. His ornithological achievements, explorations, collections (mammals, birds, flowers, mallophaga, amongst others), quarrels, threats and dispositions are dealt with quite fully and the controversies explained, the author coming down on Meinertzhagen's side in general, not in every case convincingly.

Meinertzhagen's highly significant collection of some 25,000 bird skins, nearly all from over the entire Palaearctic, of which he had collected and prepared over half personally, was eventually presented to the BMNH, all beautifully prepared and catalogued—a uniquely cherished possession. Sadly, its reliability as a research source is flawed; in the biographer's words ". . . in his querky manipulation of the labels of a small but unknown proportion of the total . . ., in his willingness to swop and rearrange them, and in his sometimes bizarre errors and weird inconsistencies one can trace the broad streak of eccentricity that made Meinertzhagen so vital, so compelling, and at times so suspicious a character".

That ornithology was always at the forefront of his mind was frequently made clear, perhaps never better than by his strenuous personal exertions and advocacy (though then unsuccessful) in "the heat and confusion" of the 1919 Paris Peace Conference, which he was attending professionally, in favour of a suggestion that Heligoland should be established as an international bird sanctuary. His concern for such projects, as well, indeed, for people whom he thought worthwhile, were always close to the surface.

Mark Cocker has written a very readable and even-handed review of a remarkable man, an enigma even to himself. Meinertzhagen's friend Malcolm Muggeridge spoke of him as a "legendary figure without a legend". T. E. Lawrence, who knew him well, described him as a "silent, laughing, masterful man", yet also let the criticism fall that he was ". . . so possessed by his convictions that he was willing to harness evil to the chariot of good". History must decide whether this last criticism justifiably applies to a proportion of Meinertzhagen's ornithological and other natural history legacies.

McAllen, I. A. W. & Bruce, M. D. 1988. *The Birds of New South Wales. A Working List*. Pp. 103. Biocon Research Group, in association with the NSW Bird Atlassers. Flexible covers. Aus$17.00. 21 × 30 cm.

The list includes all species recorded since Europeans reached NSW, including Lord Howe Island group and nearby seas. The 7-page introduction deals briefly with the sequence and nomenclature used and the classification of Australia's birds, rare and endangered species, habitat and climatic changes. At the end there are over 15 pages of references cited. The rest of the volume deals with the species, each of which is given references to the same three major works; the annotations vary greatly in amount from nothing for a great many species to up to half a page—most of them are taxonomically based, some of them controversial. A useful list, which it is hoped will increase the "information base on NSW birds and their conservation needs".

Mason, V. 1989. *Birds of Bali*. Pp. 80. Colour illustrations by Frank Jarvis. 4 colour photos. Periplus Editions, Singapore. Hardback. No price. 15 × 23 cm. Modern Balinese art end-papers.

This is not at all the usual fieldguide. About 100 arbitrarily chosen species (out of c.300) are illustrated and described. There is a poetic influence apparent in the text which reads amusingly and is perceptively informative for the birdwatcher inexperienced in the SE Asia avifauna. There is a check-list of all Bali birds at the end of the book. The illustrations are equally less usual; artistically presented, the birds are shown in typical and varying postures against an unobtrusive background of Balines landscape, vegetation and human activity, in soft colours, distinctly enjoyable and each bird readily identifiable and mainly showing its distinctive features.

Thom, Valerie M. 1989. *Fair Isle. An Island Saga*. Pp. 147. Plentifully illustrated in black-and-white and 4 pp. of coloured photographs. John Donald. £12.95. Hardback. 19 × 25 cm.

The author's 30 years of interest in Fair Isle has produced an excellent and interestingly illustrated history of this well-known northern island. She traces the island's and the islanders' history from Viking times to the present from contemporary accounts and illustrates how the islanders have adapted from a complete dependence on fishing to a more diverse economy in modern times and with modern amenities and transport. Due importance is given to the prime initiatives of George Waterston and the setting up of the Fair Isle Bird Observatory (so famed for its rare and numerous migrants) and to the far-seeing National Trust for Scotland. Their joint efforts were able to rescue the decreasing Fair Isle families from being an endangered population to one now that is flourishing and content, though dependent on the "continuing enthusiasm of its small resident population and the continuing interest and goodwill of its many visitors".

Cooper J. E. (Ed.). 1989. *Disease and Threatened Birds*. Pp. 200. Diagrams, a few illustrations. ICBP Technical Publication No. 10. £16.50 Flexible covers. 13 × 21 cm.

This is a compilation of the Proceedings of a symposium held in June 1986 in Kingston, Ontario at the XIX World Conference of the ICBP. Included in the subjects are the biology and methods of spread of avian pathogens, together with their detection and control. The Editor, who convened the symposium, as well as presenting papers, expresses the likely hope that "by involving and attracting scientists from a variety of disciplines" some contribution will have been made to the ICBP's 'Biodiversity Project' launched in 1988.

Violani, C. 1988. *Un Bestiario Barocco*. Pp. 226. Profusely illustrated in colour. Milan Natural History Museum. (In Italian.) 24 × 17 cm.

This beautifully produced and illustrated booklet is a catalogue of 'feather pictures' shown at a recent exhibition at Milan Natural History Museum. On loan from McGill University, Canada, they are the work of Dionisio Minaggio in early 17th century Milan, consisting mostly of pictures of birds of Lombardy, though there are also artistic scenes of country life, musicians, etc. Minaggio was gardener to the Spanish Governor, but undoubtedly an acute observer and a skilled craftsman.

Each picture was painstakingly built up by glueing feathers of various birds onto a sketched outline, in the case of birds using only the feathers of the subject itself, the skin, the legs and part of the beak. Many of the pictures are true to life and artistically pleasing, but others show considerable poetic licence and unfamiliarity with the species being depicted. A most attractive volume.

Carretta, L. 1988. *Rapaci in Volo*. Pp. 75. Author's sketches and graphics. Pirella editore Genova. (In Italian.) 33 × 24 cm.

This slender booklet describes the flight paths traced by raptors, using five Ligurian species. The subtitle, "Archaeologia Probabile" indicates the pessism of the author in regard to the future security of these birds. She admits to not being an ornithologist, but spent many hours in the field with her sketch book and seeks to establish an understanding of raptors' ethology through patient observation. She has made graphics of the flight paths, to which she has added footnotes of explanation, together with a brief account of each species, accompanied by rather undistinguished drawings.

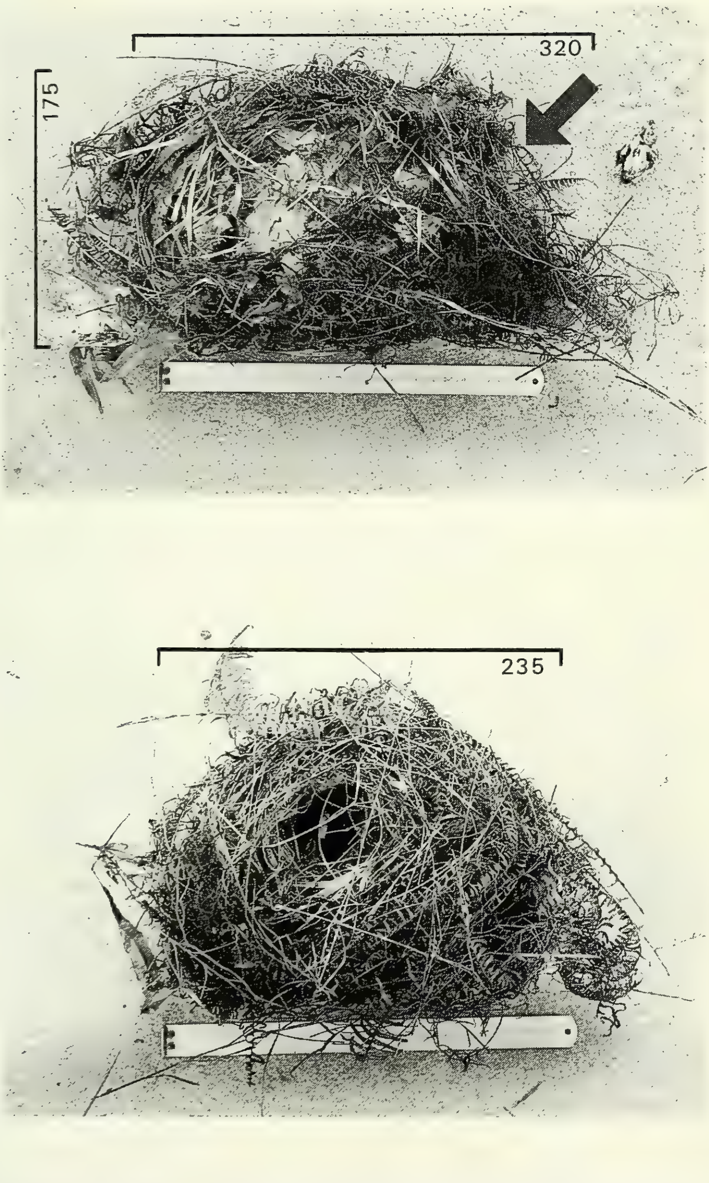

Plate 3. Nest of the Mountain Firetail *Oreostruthus fuliginosus:* (a) side profile with nest entrance (arrowed) and mummified nestling to right; (b) front profile looking into entrance hole. For sizes see text, page 35.

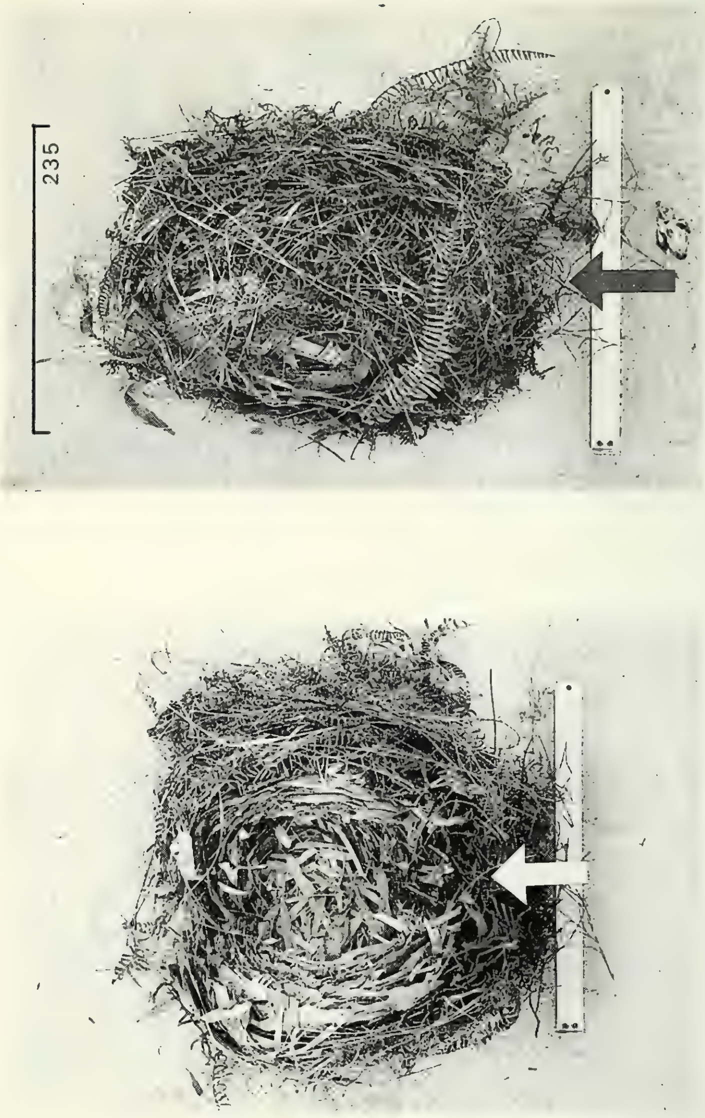

Plate 4. Nest of the Mountain Firetail *Oreostruthus fuliginosus:* (a) viewed from vertically above with nest entrance (arrowed) and mummified nestling to right; (b) with roof cut open from above entrance (arrowed) to rear of chamber and then parted. For sizes see text, page 36.

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CONTENTS

Page

REPORT OF THE COMMITTEE FOR 1989 3

ANNUAL GENERAL MEETING—AGENDA 4

REPORTS OF MEETINGS 5

R. Y. McGOWAN & J. S. PRITCHARD First record of the Red-breasted Flycatcher *Ficedula parva* for the Philippines 6

E. D. H. JOHNSON & S. J. FARNSWORTH On the possible former breeding of the Red-footed Falcon *Falco vespertinus* in Algeria 7

S. L. OLSON Remarks on the osteology of the Madagascan warblers *Dromaeocercus* and *Amphilais* (Sylviidae) 9

S. L. OLSON & J. C. DEN HARTOG Former breeding of *Sula dactylatra* in the Cape Verde Islands 10

J. F. R. COLEBROOK-ROBJENT The nest and eggs of Bannerman's Blue-headed sunbird *Nectarinia bannermani* 13

D. W. BUDEN Report on the birds collected during the Armour-*Utowana* West Indian Expeditions 14

G. R. GRAVES & R. L. ZUSI Avian body weights from the lower Rio Xingu, Brazil 20

J. FJELDSÅ Geographic variation in the Rufous-webbed Tyrant *Polioxolmis rufipennis*, with description of a new subspecies . . . 26

N. STRONACH Habitat and distribution of the Rock-loving Cisticola *Cisticola aberrans* in Serengeti National Park, Tanzania 32

C. B. FRITH & DAWN W. FRITH The nest of the Mountain Firetail *Oreostruthus fuliginosus* (Estrildidae) in Papua New Guinea . . . 35

D. F. STOTZ First specimens of *Drymophilla devillei* from Colombia 37

P. ALSTRÖM & U. OLSSON Taxonomy of the *Phylloscopus proregulus* complex 38

P. ALSTRÖM, P. R. COLSTON & U. OLSSON Description of a possible new species of leaf warbler of the genus *Phylloscopus* from China . . 43

BETSY T. THOMAS Additional weights of Venezuelan birds 48

N. E. BAKER & E. M. BAKER A new species of weaver from Tanzania . 51

BOOKS RECEIVED 59

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British Ornithologists' Club

Edited by
Dr J. F. MONK

Volume 110 No. 2 June 1990

FORTHCOMING MEETINGS

800th Meeting of the British Ornithologists' Club

The 800th Meeting of the Club will be held in the evening of Tuesday, 10 July 1990 at Imperial College.

The address will be given by the Earl of Cranbrook, PhD, on "Development of Habitat and Species Protection in the European Community".

Lord Cranbrook is Chairman of the Environmental Sub-Committee of the House of Lords on European Communities.

Those wishing to attend should notify the Hon. Secretary by Tuesday 26 June 1990*. (Booking forms were enclosed in the March publication).

Tuesday, 24 July 1990. Dr David Peakall, Wildlife Toxicology Division of the Canadian Wildlife Service, will speak on **"Peregrines and D.D.T.—A Toxicological Detective Story". Dr Peakall is at present spending six months at London University writing a book on the use of biomarkers in environmental assessment.**

Those wishing to attend should notify the Hon. Secretary by Tuesday 10 July 1990*.

Tuesday, 25 September 1990. Dr Michael Rands will speak on **"An Island Paradise? Ornithology and Conservation in the Seychelles".**

Dr Michael Rands was with the Nature Conservancy for some time and is now Project Director of the I.C.B.P.

Those wishing to attend should notify the Hon. Secretary by Tuesday 11 September 1990*.

Tuesday, 23 October 1990. Dr H. Q. P. Crick will speak on **"The Detestable Fly? Tsetse Control and Birds in Africa".**

It is hoped that **Dr A. J. Knystautas** will be visiting Britain at the end of the year and will speak on the **'Avifaunal Composition of the U.S.S.R."** on **Wednesday, 12 December 1990.**

Meetings are held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6.15 pm for 7 pm. A plan showing Imperial College will be sent to members on request.

*It is usually possible to take acceptances up to the weekend before a meeting, but Members are asked to accept by 14 days beforehand as arrangements for the meeting have to be confirmed with Imperial College well in advance.

If you accept and subsequently find you are unable to attend please notify the Hon. Secretary, 1 Uppingham Road, Oakham, Rutland LE15 6JB (tel. 0572 722788) as soon as possible.

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 110 No. 2 Published: 16 June 1990

The seven hundred and ninety-fourth meeting of the Club was held on Tuesday, 16 January 1990 in the Senior Common Room, Sherfield Building, Imperial College, South Kensington at 6.15 pm. 31 members and 27 guests attended.

Members present were: R. E. F. Peal (*Chairman*), J. Boswall (*Speaker*), M. A. Adcock, R. Beecroft, K. Betton, Mrs D. Bradley, P. Bull, Cdr M. Casement RN, P. Conder, J. H. Elgood, S. J. Farnsworth, A. Gibbs, Revd T. W. Gladwin, B. Gray, D. Griffin, C. Helm, J. King, Dr A. Meldrum, Dr J. F. Monk, Mrs A. Moore, R. Morgan, Mrs M. Muller, J. Parker, A. J. Randall, S. Rumsey, V. Sawle, Dr R. C. Self, P. J. Sellar, N. H. F. Stone, D. Tutt, Dr A. Tye.

Guests present were: Mrs B. Adcock, J. Aitcheson, Miss J. Alexander, Miss Z. Ballard, D. Bradley, Mrs J. Bull, Miss J. Edrich, Mrs F. Farnsworth, Mrs B. Gibbs, J. Fisher, Mrs L. A. Fisher, Mrs J. M. Gladwin, Mrs S. Griffin, Miss K. Hoff, B. Marsh, Mrs G. Marsh, Dr H. Meldrum, Mrs D. C. Monk, P. J. Moore, Mrs E. Moon, Cdr L. Moon RN, C. Muller, M. Payne-Gill, Mrs E. Peal, R. Ranf, Mrs M. Seton-Watson, Mrs H. Tye.

The meeting stood in silence to mark the death of Sir Hugh Elliot who died in December 1989.

After supper Mr Jeffery Boswall gave an interesting and amusing talk, illustrated by short video films, of the work of the Film and Video Unit of the RSPB with the title 'Moving Images in the Cause of Bird Protection".

The seven hundred and ninety-fifth meeting of the Club was held on Tuesday, 20 February 1990 in the Senior Common Room, Sherfield Building, Imperial College, South Kensington at 6.15 pm. 34 members and 27 guests attended.

Members present were: R. E. F. Peal (*Chairman*), M. A. Adcock, Miss H. Baker, Mrs D. M. Bradley, B. H. Beck, P. J. Belman, K. Betton, P. Bull, D. R. Calder, Cdr M. Casement RN, Dr N. Collar, I. D. Collins, P. Conder, S. J. Farnsworth, A. Gibbs, Revd T. W. Gladwin, Dr J. Greenwood, D. Griffin, Dr F. D. Kelsey, R. Kettle, Revd G. McCulloch, T. R. Mills, Mrs A. M. Moore, R. G. Morgan, Dr R. Prŷs-Jones, A. J. Randall, B. L. Sage, V. J. Sawle, Dr R. C. Self, P. J. Sellar, R. E. Sharland, N. H. F. Stone, A. R. Tanner, D. Tutt.

Guests present were: Eugeniy Potapov (*Speaker*), Mrs B. Adcock, Dr R. J. Baker, Mrs J. Calder, Dr R. J. Chandler, T. Chapman, Ms F. C. Cotton, S. Dorward, Mrs F. Farnsworth, Mrs J. M. Gladwin, Mrs S. Griffin, Ms B. Hammond, D. Harris, Miss K. Hoff, R. Kirk, Mrs N. Liddell, Mrs I. McCulloch, P. A. Marrack, B. Marsh, Mrs G. Marsh, Mrs J. Mills, P. J. Moore, M. Paling, Dr D. Peakall, R. Ranf, Mrs A. Sage, Dr M. Wilson.

Mr Eugeniy Potapov, speaking after supper on "Some Birds of Lowland Tundra in N.E. Siberia" gave a most interesting description, illustrated with slides, of working at a field station of the University of Magadan on the Sea of Okhotsk, an area of lowland tundra very little known. He reviewed the climate and geomorphology of the region and its correlation with the bird population.

The seven hundred and ninety-sixth meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College on Tuseday, 13 March 1990 at 7 pm. 28 members and 21 guests attended.

Members present were: R. E. F. Peal (*Chairman*), T. R. Roberts (*Speaker*), M. A. Adcock, K. F. Betton, Mrs D. M. Bradley, D. R. Calder, S. J. Farnsworth, Revd T. W.

Gladwin, Dr A. G. Gosler, D. Griffin, Dr T. Inskipp, T. J. James, M. C. Jennings, R. Kettle, Dr A. G. Knox, Revd G. McCulloch, T. R. Mills, Mrs A. M. Moore, R. G. Morgan, Mrs M. Muller, R. Price, Dr R. Prŷs-Jones, V. J. Sawle, Dr R. C. Self, P. J. Sellar, N. H. F. Stone, Dr D. Thomas, Dr A. Tye.

Guests present were: Mrs B. Adcock, D. Bradley, Mrs B. Calder, Dr J. Croxall, Mrs F. Farnsworth, Mrs J. M. Gladwin, Ms. K. Hoff, Mrs C. M. James, K. Kilburn, R. Kirk, Mrs I. McCulloch, N. McCulloch, Mrs J. Mills, P. J. Moore, Dr D. Parkin, Mrs H. Price, R. Ranf, M. Riddell, Mrs Roberts, L. Svensson, Mrs H. Tye.

Mr T. R. Roberts speaking after supper on "Birds of Pakistan" described the physical features of the country and, with his excellent collection of slides, reviewed the avifauna. He displayed his very wide and detailed knowledge of Pakistan and of its birds, which was much appreciated by the meeting.

An extra, informal meeting was arranged in the Senior Common Room, Sherfield Building, Imperial College, on Tuesday 10 April 1990 to take advantage of the visit to Britain by Dr Richard Liversidge. 31 members and guests attended to hear Dr Liversidge speak on "Raptors of the Southern Kalahari". He spoke of his recent visit to south Kalahari giving details of the amount of rainfall in the area and the variation in the raptor population there over recent years. With the aid of some superb slides he was able to demonstrate field characteristics of many birds of the Kalahari at rest and in flight and his address stimulated an interesting discussion afterwards.

A record of the African Piculet *Sasia africana* from Liberia

by Jon Fjeldså & Hartvig Jensen

Received 24 August 1989

The African Piculet *Sasia* (syn. *Verreauxia*) *africana* is widespread in humid forest in the Congo basin, from southwestern Uganda and northern Angola to the Central African Republic and southwestern Cameroon. However, there are indications that the range extends further to the west (Short 1982, Fry *et al.* 1988). A sight record (ad. ♀ and juv.) was reported from Akutuase in Ghana by Macdonald & Taylor (1977). A more questionable record from Lokojo in Nigeria was given by Bannerman (1933) and later doubted by him (1953): but see also Elgood (1982). The present note reports a specimen record from northeastern Liberia, made by H.J. This represents a 2000 km westwards extension of the range documented by specimens.

This specimen was mistnetted 24 June 1972 by local pet-bird traders, 3–4 km from the small 'bush town' Tchien (Zwedru) in northeastern Liberia (6°N, 8°25′W) in 'Forest area 4', stretching from Tchien to the Cavalla River, which forms the border to the Ivory Coast. The net had been placed in dense second growth dominated by *Raphia* palms, shrubs and bushes, in a partially cleared farmland area, where rice, casawa and yam was grown in small fields, on a rotational basis, permitting development of some second growth shrub, and occurrence of scattered tall trees.

The site was some 2 km away from the nearest primary forest ('timber forest') at that time.

The bird was skinned by H.J. (private collection, catalogue number 724); the bones of the pectoral girdle are kept with the skin. The bird, an adult ♀ with vinous red eyes, orbital skin and feet, weighed 7 gm (recorded on the label when fresh). The flattened wing length is 49.7 mm, culmen 10.5 mm, tarsus 11 mm. The top of the head is Dark Olive-Gray washed with Citrine on the feather-tips; upperparts Citrine towards Orange-Citrine or Old Gold; underside Deep Olive-Gray (all colours according to Ridgway 1911). The face showed the characteristic pattern, with a white postocular line demarcated with a blackish line towards the ear-coverts.

J.F. was able to compare the Liberian specimen in 1987 and 1988 with altogether 58 specimens in the British Museum of Natural History (Tring), the American Museum of Natural History (New York) and the Field Museum of Natural History (Chicago). (Five other institutions visited did not have specimens of this species.)

The comparative material showed considerable individual variation, especially in the males. The upperparts varied from uniform Aniline Yellow or Buffy Citrine to almost Hair Brown, usually with duller, more Olive-Gray crown; the underparts varied from Neutral Gray or deep grey washed with Citrine to Grayish Olive, chin purer grey, occasionally with pale shafts. The variation may in part result from wear, and did not seem to follow a geographic pattern. Birds from Zaïre may average duller (more brownish) on the crown than most birds from Cameroon, but this did not hold true in all specimens. The Liberian specimen fell within the range of variation of Cameroon birds. The measurements are near the mean values for females given by Fry *et al.* (1988). Curiously, the weight of 7 gm is well below the weights given by Fry *et al.* (9–10.5 for 6 birds from Cameroon, 7.5–9.5 for 12 birds from Uganda). One bird from the western end of the traditional range, Rumpi hills in Cameroon, weighed 7.9 gm (Bowden 1986).

Considering that the species seems to be a stationary inhabitant of dense, tangled forest undergrowth one would expect the western population to represent a distinct subspecies (Macdonald & Taylor 1977). However, according to the present comparison we must conclude that any possible differentiation is too slight to be revealed by the single available specimen from a western population. This indicates that the species is more widespread than assumed in the humid forest zone north of the Gulf of Guinea. Although common locally (Gabon, Bwamba in Uganda—see Fry *et al.* 1988), the species is generally regarded as uncommon, but it is very likely to be overlooked as it darts about in the dense vegetation. Alternatively, small western populations may have become relict populations too recently to have acquired diagnostic features.

The collecting locality near Tchien is near the Grebo National Forest, close to the large Tai National Park in Ivory Coast. These reserves, it is sincerely hoped, will protect the bio-diversity in this region.

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Evidence for breeding of the Lanner Falcon *Falco biarmicus erlangeri* in Spain in the 19th Century

by Robert Y. McGowan & Bruno Massa

Received 30 August 1989

Arevalo y Baca (1887) reports the breeding of the Lanner Falcon *Falco biarmicus* in old nests of kites *Milvus* sp. on Coto Doñana and quotes observations by Lord Lilford on its nesting. Irby (1895) writes that Lanners "were found nesting on pine-trees in the Coto del Rey, near Seville". He found one nest (3 years previously used by a Buzzard *Buteo buteo*) containing eggs at the end of March. Coltart (1952) also describes Lanner Falcon clutches from Coto del Rey, a C/3 from the Dalgleish collection and a C/2 in the collection of Lord Lilford. Valverde (1960) concedes that some Lanners were shot from time to time in this region, but nonetheless does not accept these earlier breeding records. Cramp & Simmons (1980) do not mention Spain in the breeding range of this Falcon.

There exists in the collections of the National Museums of Scotland (NMS) some material which we believe indicates that Lanners did, indeed, breed in Spain during the latter part of last century. One C/3 of *Falco biarmicus erlangeri* is preserved in the collection of Hugh M. S. Blair (NMSZ 1981.061). This clutch was collected on 12 April 1879 at Coto del Rey by Manuel Llanos for Alberto Ruiz. Blair's clutch card reads:

> "In a tree. Incubation apparently advanced. Manuel Llanos was a well-known and trustworthy collector, who, at one time or another, furnished Lord Lilford with specimens, amongst them skins and eggs of the Lanner. There are frequent references to him in the Lilford diaries (see *Lord Lilford on Birds* pp. 146, 196–200, 212, 216 and 298). Alberto Ruiz, of Seville, was a dealer of good repute. He too figures in Lord Lilford's diaries. As mentioned by Irby (. . .) the few Lanners known to breed in Spain appropriated old nests of other raptors, generally in stone-pines. They were recorded from Coto del Rey and Coto Doñana. These very interesting eggs were sent by Ruiz to J. J. Dalgleish, who received them on 14.11.1879. They later passed into the collection of C. R. Wood, and when this was

dispersed by C. H. Gowland, they were purchased by N. B. Coltart on 10.12.1939. Coltart sold them to T. R. N. Crafts in 1942, but re-acquired them from the latter's executor (J. Harwood) on 12.1.1951. In 1960 he most generously presented them to me, and I received them on the 19 March, that year, together with the original data ticket."

The eggs measure: 51.40 × 40.35; 50.40 × 39.80; 52.15 × 39.50.

In addition there are 4 Spanish skins of *F. b. erlangeri* from the J. I. S. Whitaker collection (NMSZ 1956.003), as follows:

1. no. 2229, ♀, 3 May 1882, Coto de Doñana. The label states: "shot on the nest with 3 juv + 1 egg, then reared by male only";
2. no. 2301, ♀, 29 March 1873, Coto del Rey;
3. no. 2297, immature ♀, [taken from nest] April 1879, Corio del Rio. Kept in captivity at Whitmoor until its death the following year. The label states: "taken from nest near Corio del Rio, S. Spain. D.D. [= discovered dead?] May 1880 at Whitmoor, Guildford";
4. no. 2306, immature, unsexed, [assumed taken from nest April 1879, Corio del Rio]. The label states: "Lanner F. from Spain deposited by Lord Lilford with F. H. Salvin Esq. Whitmoor House, Guildford where it died August 1879."

The heavily abraded wings and tails and general dirty appearance of the latter 2 skins seem to confirm that they had been kept in captivity for a period. From these birds' relative sizes and dates of death it seems reasonable to conclude that they were siblings which had been acquired from the same nest.

A third piece of evidence is supplied in a manuscript held in the Library of the NMS. A notebook entitled "*Catalogue of the birds of South of Spain* by Howard Saunders, communicated to the Zoological Society of France 1876–77" contains the following section on Lanner Falcons:

> "Rare. Nevertheless it has been dislodged and killed in the forests south of Seville, and, to all appearance, it has been obtained in Grenada and Murcia; but I have not been able to examine these last two examples. The first mentioned, with their eggs, form part of Lord Lilford's collection, where I have seen them."

We believe that the existence of this material lends veracity to the views of earlier authors and provides conclusive proof that the North African form of the Lanner Falcon *F. biarmicus erlangeri* did breed, though probably irregularly, in a limited area of southern Spain.

Acknowledgements

We are grateful for assistance from F. J. Purroy and C. Violani who provided some of the references.

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On two indeterminate shearwaters from South African waters

by A. Berruti

Received 3 August 1989

The taxonomic status of 2 small shearwater forms currently treated as 2 species, namely *Puffinus assimilis* Gould, 1838, and *P. lherminieri* Lesson, 1839, is still largely unresolved. Jouanin & Mougin (1979) recognise 18 subspecies grouped into 2 species, while a further subspecies in the *lherminieri* assemblage has recently been described from the Comores by Louette & Herremans (1985). Jouanin & Mougin (1979) have suggested that at least 3 of their races of *P. lherminieri*—*P. heinrothi* Reichenow, 1919, *P. l. bannermani* Mathews & Iredale, 1915, and *P. l. persicus* Hume, 1873—may be further full species, but even the separation of *assimilis* and *lherminieri* is not universally upheld at present. Both Vaurie (1965) and Bourne (1986) have maintained that only a single variable species is involved. The taxonomic status of the population breeding on the Cape Verde islands (*boydi*) is controversial, being variously regarded as part of a single variable species (Vaurie 1965, Bourne 1986), a subspecies of *lherminieri* (Jouanin & Mougin 1979) or as a subspecies of *assimilis* (Cramp & Simmons 1977). A recent study of material from the eastern North Atlantic, South Atlantic and western Indian Oceans, has served to show that many characters used to differentiate *assimilis* and *lherminieri* are subject to much individual and regional variation.

Forms of both these *Puffinus* species occur within southern African coastal waters (Clancey 1980). In the case of *P. assimilis*, 2 subspecies have occurred, these being *P. a. elegans* Giglioli & Salvadori, 1869: South Atlantic at 43°54′S, 9°20′E, and *P. a. tunneyi* Mathews, 1912: Boxer Is., southwestern Australia. The validity of these records and the characters of the 2 races accepted for South Africa are explained in Sinclair *et al.* (1982). In the case of *P. lherminieri*, a single record of *P. l. bailloni* (Bonaparte), 1857: Mauritius, exists from the eastern Cape (Courtenay-Latimer 1953), the identity confirmed by R. C. Murphy many years ago. There is also a single sight record, which was not determined to subspecies (S.A.O.S. Rarities Committee 1986). Recently, 2 further small shearwaters differing sharply from both accepted races of *P. assimilis* and *P. l. bailloni* were received by the Durban Natural Science Museum (DNSM).

The first of the 2 South African specimens was found alive on the beach at Durban, on the east coast of South Africa, on 20 January 1987, but died shortly after being found. It was given to J. C. Sinclair (Durban Natural Science Museum), who recognised that the bird was intermediate in certain characters. This bird is hereafter referred to as the Durban bird and is in the collection of the DNSM (DM 36093). The bird was freeze-dried and was not sexed. It is comparatively large but other characters suggest that it belongs to *assimils*: the bird dorsally is black, not brown, with largely white, not brown, under tail coverts. The longest under tail coverts are brown or have a brown outer vane but the shorter ones are white, so that the under tail coverts appear white. The colour of the dorsum is saturated black (Fuscous Black—capitalised colours from Ridgway 1912), with the black of the head extending below the eye and sharply demarcated from the white underparts. The pectoral patches are inconspicuous. The underwing is white, sharply demarcated by a black edging. The leg colour was not recorded at the time of death, but at present (freeze-dried) the outer tarsus, outer toe, sole and claws are black, in sharp contrast to pale inner webs and inner toes.

The second South African specimen was found alive on 15 September 1988 at Shingwedzi camp, in the Kruger National Park, in the eastern Transvaal, some 410 km from the sea. It was donated to the Transvaal Museum (TM 74351). The inland occurrence of this bird is extraordinary, particularly because there had been no major weather event that may have caused it to be blown inland. The bird, hereafter referred to as the Shingwedzi specimen, was freeze-dried, but was not sexed. The dorsal colour is black (Chaetura Black). The underparts are white with inconspicuous pectoral patches. The shorter under tail coverts are white, while the longer are brown or have brown outer vanes. Although the proportion of brown in the under tail coverts is greater than in the Durban bird, the field impression would be of white under tail coverts. The coloration of the legs and feet was not recorded while the bird was alive, but at present (freeze-dried) is very similar to that of the Durban specimen.

Most authors who accept the specific discreteness of *assimilis* and *lherminieri* use the criterion of dorsal colour, slate-black or greyish-black in *assimilis* and brownish black in forms of the *lherminieri* group. The colour of the under tail coverts is also frequently employed—largely or wholly white in the subspecies of *P. assimilis* and brownish or brownish-white in subspecies of *lherminieri*. The subspecies of *lherminieri* are credited with a longer wing than *assimilis*. Leg colour has also been advanced as a useful character, but is of little use where dried skins are employed in research.

In order to determine to which populations the Durban and Shingwedzi specimens belong, material of the North Atlantic forms *P. a. baroli* (Bonaparte), 1857: Desertas, Madeira, and *P. l. (a.) boydi* Mathews, 1912: Cape Verde islands, *P. a. elegans* (specimens from Gough Island), *P. l. bailloni*, *P. l. nicolae* Jouanin, 1971: Cousin Island, Seychelles, *P. l. persicus* and *P. a. tunneyi* were assembled.

For each of these specimens, the total culmen length is plotted against wing length (Fig. 1). Further total culmen and wing length measurements were obtained for the following taxa; one *temptator*, 2 *nicolae* (Seychelles and Laccadives), 2 *bailloni* (Reunion and Mauritius) and 1 *persicus* (Somalia) (Louette & Herremans 1982).

The material clusters into 3 distinct colour groups:

a) Eastern North Atlantic (*baroli* and *boydi*)

Dorsal surfaces, wing and tail blackish brown or dull slaty black.

b) South Atlantic and western Australian seas (*elegans* and *tunneyi*)

Dorsal surfaces wholly greyer, often more bluish than last, with moderate or heavy scaling of blackish.

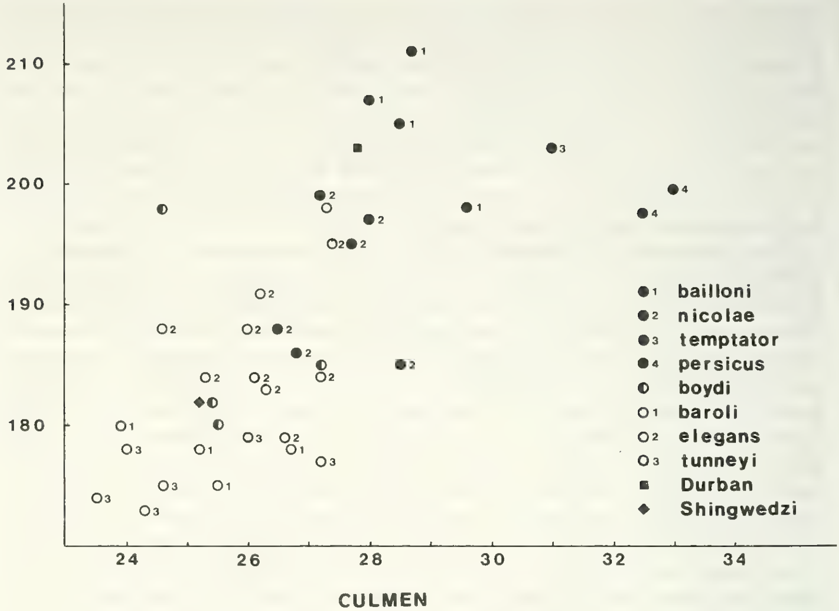

Figure 1. Measurements of total culmen length *versus* wing length for various taxa of *Puffinus assimilis*/*lherminieri* examined in this study or taken from Louette & Herremans (1985).

c) Eastern Indian Ocean and Arabian Sea (*bailloni*, *nicolae* and *persicus*) Olive-brown upperparts, wings and tail, *nicolae* and *persicus* somewhat scaled with lighter brown (much as in *elegans* and *tunneyi*). The dorsal colour of the 3 taxa darkens from north (*persicus*) to south (*bailloni*). The recently proposed *P. l. temptator* was not considered, still being known only from the incomplete and unique type.

Neither the Durban nor the Shingwedzi individual can be allocated to a described taxon as represented by available material. The Durban bird is larger than any *assimilis* examined in this study (Fig. 1). It differs from *bailloni*, which also has white under tail coverts, by being saturated slate black dorsally rather than brown-black (Deep Clove Brown) and lacks the well-developed pectoral patches present in *bailloni*. The Durban bird also differs from *nicolae*, *temptator* and *persicus*. *P. l. nicolae* is browner (Clove Brown with edgings Olive Brown) dorsally, has well-developed pectoral patches and is smaller than the Durban specimen (Fig. 1). Although *nicolae* has some white under tail coverts (Jouanin 1970; pers. obs.), it has fewer than the Durban bird. The single known individual of the recently-described *temptator* (not examined) is large (Fig. 1) and is characterised by a smoky underwing and pectoral patches, with white and black under tail coverts (Louette & Herremans 1985). *P. l. persicus* is brown (Dull Olive-Brown with lighter fringes) dorsally, has brown under tail coverts with long wings and bill (Fig. 1). Of the material examined, the Durban specimen is closest to *boydi* and *baroli* in colour. It is larger than *boydi* and has white, not brown, under tail coverts. The Durban bird has black extending below the eye, sharply demarcated from the white lower face, whereas in *baroli*, the white extends above the eye.

The Shingwedzi specimen falls within the size range of the various races of *assimilis*, and is smaller than all the specimens of *lherminieri* examined during this study with the exception of 2 specimens of the controversial *boydi* (Fig. 1). It differs from *baroli* in lacking white feathers above the eye and in possessing some brown under tail coverts. The Shingwedzi specimen is larger than the available specimens of *tunneyi* and is blacker dorsally. Dorsally, *tunneyi* is Deep Mouse Gray with blackish slate terminal fringes giving a scaled appearance. It has some brown under tail coverts wheras *tunneyi* has only white coverts. The Shingwedzi specimen differs from *tunneyi* collected on Eclipse Island in lacking dark feathers below the eye, but shares this feature with *tunneyi* from the Houtman Abrolhos islands. *P. a. elegans* from Gough island is dorsally similar to *tunneyi* in colour, but the pileum is blacker and the hind neck not so grey. The black fringes to the dorsal feathering are blacker and broader than in *tunneyi*. The Shingwedzi bird may originate from St. Paul Island, which is the nearest known shearwater breeding station to South Africa, because a specimen of breeding bird from this island may belong to an undescribed race of *assimilis* (Jouanin & Mougin 1979).

Two alternative solutions to the identity of these new specimens are suggested. Firstly, that the Durban and Shingwedzi birds are members of the same and undescribed taxon. However, they differ greatly in size (Fig. 1), and if they do belong to the same taxon, presumably represent the extremes of the size range of that taxon. Their dorsal coloration is most similar to the North Atlantic populations (*boydi* and *baroli*), and on this basis, they may possibly originate from an undiscovered North Atlantic colony. However, it seems very unlikey on geographic grounds alone that this population would be first located in South Africa waters, particularly since neither *baroli* nor *boydi* have ever been recorded in the southern hemisphere (Cramp & Simmons 1977, Jouanin & Mougin 1979, Sinclair *et al.* 1982). On the basis of the saturated black dorsal coloration of both birds, they would seem to be a race of *assimilis*, possibly one breeding on St. Paul Island, where an undescribed race may occur (Jouanin & Mougin 1979), or on other sub-Antarctic islands, such as the Crozets or Kerguelen.

The second alternative suggests that the Durban and Shingwedzi birds may belong to different taxa, based on differences in size and the amount of white in the under tail coverts. The Durban bird is larger, with a longer more slender bill and with fewer brown under tail coverts, and could belong to an undescribed taxon of *P. lherminieri* breeding in the western Indian Ocean. The occurrence of white under tail coverts occurs to a greater or lesser extent in all described races of *lherminieri* from this area. However, the Durban bird is blacker dorsally than any of the known populations. The Shingwedzi bird, on the other hand, could belong to an undescribed population of *assimilis* that breeds somewhere in the southern Indian Ocean, perhaps on St. Paul Island, possibly in the Kerguelen or Crozet archipelagoes, as suggested for an undescribed taxon.

Neither size nor colour of the under tail coverts constitute absolute criteria for separating *lherminieri* and *assimilis*, lending support to the contention of Bourne (1986) that they comprise a single variable species. The leg and foot colours are sometimes regarded as diagnostic; *lherminieri* having flesh and black coloration compared to the bluer legs of *assimilis* (Cramp & Simmons 1977). However, the value of soft part coloration of museum specimens is greatly diminished by colour changes after death, and as a taxonomic criterion has been criticised by Bourne & Loveridge (1978) because of the occurrence of intermediate colorations. Further research is necessary to establish the value of leg and foot colour as a taxonomic character.

The various populations of the *lherminieri/assimilis* assemblage are characterised by a high degree of spatial separation, which is apparently reinforced in some populations by sedentary habits (Jouanin & Mougin 1979, Harrison 1983). This suggests that the assemblage may comprise several valid species or semi-species. Biomolecular techniques (Cooke & Buckley 1987) hold promise for better insight into the taxonomy of this and other pelagic seabird assemblages and ones which comprise many variable reproductively isolated populations, such as *Pachyptila* and the *Puffinus puffinus* complex.

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The nightjars of Zaïre

by M. Louette

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With the separation as full species of *Caprimulgus clarus* from *C. climacurus*, *C. nigriscapularis* from *C. pectoralis* and *C. ruwenzorii* from *C. poliocephalus* (but see below) in *Birds of Africa* (Fry & Harwin 1988), and with the description of a new species (Louette 1990), the avifauna of Zaïre includes no less than 17 (or 15 if suspected conspecifics are lumped) species of nightjar. Chapin (1939), Schouteden (1951) and Lippens & Wille (1976) discussed their occurrence in Zaïre, and since then few additions have been mentioned. Basing myself on the collection in the Koninklijk Museum voor Midden-Afrika (KMMA), it is possible to correct and complete Zaïre nightjar status and distribution in relation to *Birds of Africa* (the new species will be described elsewhere). Incidentally, when the samples used by Jackson (1984) for his African key are considered, it is clear that the KMMA collection is very important on the African scale. A few comments on neighbouring countries are added.

Caprimulgus batesi

It is not likely that the range was disjunct originally, since the KMMA has 28 specimens, from all forested districts.

Caprimulgus binotatus

This other forest nightjar species was collected much less often than *C. batesi*; there are still only 3 specimens from Zaïre in KMMA and a fourth is shown in the *Atlas* (Snow 1978). (The locality Mieri, Cameroon, belongs under *C. batesi*, not under this species—Louette 1981.)

Caprimulgus natalensis

Figure 1 gives all localities of specimens in the KMMA collection, and from Chapin (1939) and Verheyen (1953). The distribution suggests that *C. natalensis* is widespread at low elevation, along great rivers, but in general outside the dense forest region and that it is absent, or perhaps overlooked, in several areas. Lippens & Wille (1976) suggest it is known from other regions as well and mention breeding in Kwilu. *Birds of Africa*, following Harwin (1983), concludes that all birds in this general area are con-subspecific, a conclusion I can agree with after examination of the specimens from Zaïre, based on admitted size and colour variation among the central African populations and corroborated by the widespread distribution. In contrast, however, for *C. pectoralis*, *Birds of Africa* does not follow this same reasoning (see below).

Caprimulgus climacurus

The ranges of the 3 allospecies abut in the general area of northeastern Zaïre. The *Atlas* map is based on only 2 components in the superspecies (*climacurus* and *fossii*) and possible intra-African migrants of the 2 species are mapped along with the resident birds. However, the number of pale,

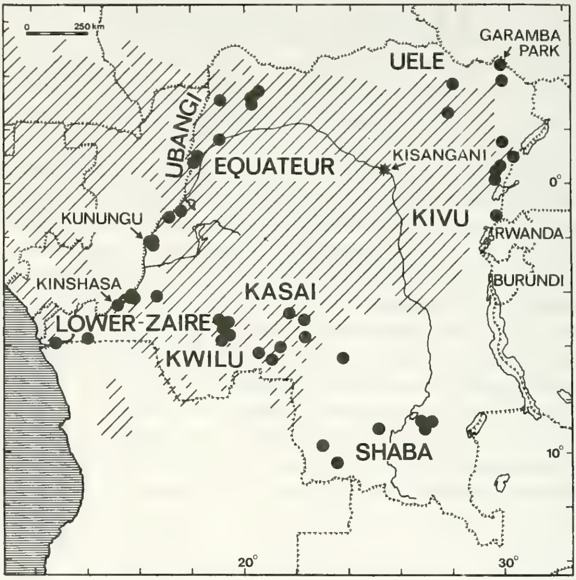

Figure 1. Distribution of *Caprimulgus natalensis* in Zaïre (circles), with indication of regions and important localities mentioned.

straw-coloured specimens, which supposedly belong to the migratory nominate race of *climacurus*, is not great for Zaïre, and all come from the northeast: Chapin (1939) mentioned 2 from Faradje (3°45′N, 29°42′E), taken 7 February and 24 November; 3 were collected in the Garamba park (one on 18 January 1950, 2 others on 24 January 1950); and 2 pale birds in the KMMA are from Bambesa (3°28′N, 25°44′E—no date) and Angodia (3°32′N, 25°47′E—27 February 1941, moulting central rectrices). All other specimens are darker, but with considerable variation (some are rich rufous) and are considered to belong to the race *sclateri*. Even in the northern part of Uele (in the Garamba park) dark birds occur and predominate in the collection.

C. climacurus has long been known to exist as well near the middle Zaïre River (although not from Lower Zaïre, as mentioned erroneously by Schouteden 1951: specimens from Boma and Leopoldville are in fact *fossii*). It is also present in the Kasai (with one record in neighbouring Angola—Traylor 1963); however, the occurrence further south, in Shaba, apparent in the *Atlas* map, is doubtful, the specimens mentioned by Schouteden (1951) from Mutombo Mukulu and Kadia turning out to be *fossii*.

The species is present over most months of the year in the regions both north and south of the equatorial forest belt, moult there and stay months afterwards in fresh and later in worn plumage, so that it is very likely they are residents or at least not long-distance migrants. Two young birds from Kasai, both collected in January, are in the KMMA collection.

Lippens & Wille (1976) mention their discovery of 7 clutches between August and November, in Kwilu, the region between the middle Zaïre river and Kasai. Thus it seems beyond question that the species breeds in this part of its range south of and adjoining the forest belt.

Caprimulgus clarus

The species "ranges widely" in Uganda (Britton 1980) so that its presence in Zaïre, near the border, is not at all unexpected. Indeed, Schouteden (1951) mentioned 2 specimens of the nominate race (= *Scotornis climacurus* according to Vrijdagh 1949, who indicated that "this species" is common in the "Plaine d'Ishwa" near Lake Albert in the dry season). Using the characteristics described in *Birds of Africa* and after comparison with East African material, I consider only one of Schouteden's 2 specimens belongs to *C. clarus*: a female collected on 18 December 1942. A separate bird from much further west—Angodia, 14 March 1943—is morphologically very similar (see also below). The second Schouteden specimen from Ishwa (2°12′N, 31°10′E—taken on the same day!) surprisingly is darker; it lacks the long central rectrices, but the other 4 pairs are graduated as in *C. climacurus sclateri*. Provisionally, I classify it with that species.

Schouteden (1951) had already mentioned that specimens of the race *apatelius*, supposedly collected in 'Uele', most probably originated in Lado, presently in Sudan.

Caprimulgus fossii

This is a common species in the southern part of the country, breeding there sympatrically with *climacurus*—immatures of this species were collected in Lower Zaïre in November, December and January. Its northernmost localities are in Uele (few), but it is not known to breed in the area in or north of the forest belt. In Equateur, 13 specimens were taken from May to August, and one in March. Perhaps surprisingly, there is a male specimen (undated) in arrested wing moult from Angodia, a locality whence also *climacurus climacurus* (moulting in February), *climacurus sclateri* (in fresh plumage in February) and '*clarus*' (moulting in March) were collected. Some specimens are particularly yellowish (e.g. one from Luluabourg—5°56′S, 22°18′E—27 May 1965, another from Ikela, Equateur—1°08′S, 23°05′E—23 July 1957), up to the point that one wonders why, if these are merely a colour phase, the same would not apply to pale coloured birds of the related species *climacurus* (see above). On the other hand, there is no light-coloured migratory race described (see Clancey 1965).

Caprimulgus pectoralis

Basing myself on Zaïrean material, it is difficult to agree with *Birds of Africa* that *pectoralis* and *nigriscapularis* are different species, a conclusion based on vocal differences by Fry (1988) and possibly not of specific distinction. No one of the colour criteria proposed in *Birds of Africa* holds true for determination of the material at my disposal, for which there is variation in all geographical populations, not just in those certainly to be considered *pectoralis fervidus* (from Shaba). One of the 8 adult Kinshasa

TABLE 1
Measurements (mm) of *Caprimulgus pectoralis* and *C.* "*nigriscapularis*"

Region		**Wing**		**Tail**		**White tail spot on R5**	
	n	x̄	range	x̄	range	x̄	range
Shaba	10 ♂♂	160.0	155.0–164.5	118.2	107.0–129.0	47.0	40.5–51.5 (9)
	11 ♀♀	158.0	146.0–162.5	115.5	109.0–123.5 (10)	34.2	20.5–42.5 (10)
Angola	♀		158.5		110.0		27.5
Lower Zaïre	5 ♂♂	148.7	147.0–154.5	112.1	108.0–114.5	38.6	35.0–41.0
	3 ♀♀	148.5	148.0–149.0	111.0	110.0–111.5	—	25.5–28.0 (2)
Kivu, Rwanda, Burundi	2 ♂♂		147.5, 153.0		104.0–114.5		44.0–46.5
	3 ♀♀	154.7	148.5–158.5	112.8	109.5–115.0	31.7	27.5–37.0

area specimens (considered as *nigriscapularis* by all previous authors, based on geographical distribution, here also as such, but based on size) is a rufous morph, 2 others from there are intermediate, while the other 5 are grey morphs; a bird from Kioffi, Burundi is a pale morph, compared with topotypical *nigriscapularis*, looking like a bleached version. All that can be said in favour of any (subspecific?) distinction is that the birds from Shaba are somewhat longer in wing and do have longer white tail tips than those from the Kinshasa area (Table 1, with which the measurements taken by Verheyen (1953) for his Shaba sample agree rather well). This size variation is in parallel with the situation in *C. natalensis* and *C. fossii*.

There is only one specimen from Kasai in KMMA, from Gandajika (6°44′S, 23°57′E), in the border area with Shaba; its wing measures 160 mm (the tail is lacking). Chapin (1939) mentions a specimen from "20 miles south of Pania Mutombo" (c. 5° 30′S, 23°50′E) in the Museum of Comparative Zoology and he considered the Kasai birds to belong to *fervidus*. The scarcity of this species there is altogether surprising because it seems widely distributed in adjoining Angola (Rosa Pinto 1983), with localities as close to Zaïre as Duque de Bragança (specimen in KMMA) and Malanje, where they are possibly off-season migrants, although the species breeds on the central plateau of Angola (Traylor 1963). In Shaba *fervidus* is common and thought to be resident (Verheyen 1953). However, there is a specimen, inseparable in colour from *fervidus* (and also determined as such by Chapin), collected much more to the north, from between Goma and Rutshuru, Kivu at c. 1°30′S, 29°20′E (another such specimen was taken at Rugege, Rwanda); but in size it is more like *nigriscapularis*, although the white tips to the tail feathers are indeed in the range of *fervidus*. All those from northeastern Zaïre (=topotypical *nigriscapularis*) and neighbouring areas are intermediate in measurements between western and southern Zaïre material, suggesting conspecificity.

Caprimulgus "nigriscapularis"

It is true that this taxon is "far more widespread in Congo basin and W Africa" as supposed in *Birds of Africa*; indeed it is known from Togo (De

Roo 1970) and is regular on the Adamawa Plateau in Cameroon (mentioned, but not shown on the *Birds of Africa* map). In Zaïre there are 9 recent specimens from the Kinshasa area (including a nestling, collected on 4 September 1979, confirming Chapin's discovery of breeding at Matadi).

Caprimulgus poliocephalus

The presence of the race *guttifer* in Zaïre rests on one specimen from Marungu (Dowsett & Prigogine 1974). I re-examined the other (supposed) representative from Mount Kabobo and find it to differ from the 'species' *C. ruwenzorii* only in its rather short white tips to the outer tail feathers for a male—47.5 mm on R5—whereas in 9 males from further north it is 52.5–66 mm, in 6 females 29–34.5 mm; *Birds of Africa* gives the range for male *ruwenzorii* as 46–68 mm. It is conceivable that the variation in these southernmost Zaïre populations will prove that they are intermediate for this character between *guttifer* and *ruwenzorii*, which latter is known from all mountain ranges to the north. It seems inconsistent to exclude *ruwenzorii* from the species *poliocephalus* on vocal characteristics (compared with all subspecies?), while morphologically it is in fact intermediate between 2 taxa admitted in the species, namely *guttifer* and nominate *poliocephalus*, which has all white outer rectrices in males.

Caprimulgus "ruwenzorii"

See under *C. poliocephalus*. *C. "ruwenzorii"* has also been collected in Rwanda and Burundi.

Caprimulgus inornatus

This species just reaches the equator in Zaïre, with specimens taken at Yokamba (Equateur) and Kisangani (Fig. 1). That it is "in December the commonest nightjar in Uelle" (=near Niangara, 3°42′N, 27°53′E—Chapin 1939) may well be, but over a longer period (November 1949 to September 1952, De Saeger 1954) the Parc National de la Garamba expedition collected there 10 specimens, but also 12 *Macrodipteryx longipennis* and 21 *Caprimulgus climacurus*.

Caprimulgus tristigma

The distribution of this species is very restricted indeed in Zaïre, with 7 specimens from Uele and Ituri (nominate race) and 6 from southernmost Shaba (race *granosus*), with the 2 subspecies well-separated. This is in marked contrast to the kind of distribution and absence of subspeciation observed for *C. natalensis* (and *C. pectoralis sensu lato*?).

[Caprimulgus fraenatus]

I have expressed doubt on the alleged occurrence of this species in Zaïre, based on a non-existent specimen from "Butembo = Ruwenzori" (Louette 1988).

Caprimulgus europaeus

That this species is "rare or vagrant west of 30°E" (=virtually the whole of Zaïre—*Birds of Africa*) is stretching the evidence as there are no less than 20 specimens from Zaïre in the KMMA, from all savanna districts except Lower Zaïre. (It has also been collected in Rwanda and Burundi.)

Caprimulgus rufigena

The status of *rufigena* in Zaïre can be somewhat better documented, after redetermination of several specimens, as follows: *April:* 2 from Equateur, 1 from Ubangi, 1 from Uele, 1 from Kisangani; *May:* 1 from Equateur, 1 from Kasai; *end of July:* 2 from Equateur; *August:* 18 from Equateur, 1 from Ubangi, (or September?), 1 from Shaba; *October:* 1 from Kasai; *without date:* 1 from Kasai, 1 from Kunungu, 1 from Equateur. These data seem to disprove the assumptions that it either winters in the western part of the country, because in that case one would have expected the species to have been collected in June–July, or breeds in the southern part: probably it is only a migrant in Zaïre. It seems that the return migration is decidedly over western Zaïre, while the onward one covers the whole country.

Macrodipteryx longipennis

Strictly confined to the northernmost border districts in Zaïre.

Macrodipteryx vexillarius

The most commonly collected species in Zaïre, over large parts of which it is migratory (275 specimens in KMMA).

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Polymorphism in *Diglossa humeralis aterrima* in southern Ecuador

by *J. R. King*

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The Carbonated Flower-piercer *Diglossa carbonaria* superspecies of the northern Andes displays a complex pattern of allopatric speciation, hybridisation and phenotypic variation, though the work of Graves (1980a, 1980b, 1982) has done much to clarify this situation. Within the range of the superspecies, *Diglossa humeralis aterrima* (henceforth referred to by the subspecific epithet only) occurs between 6°S and 6°N, from Cutervo, northern Peru to Medillin, central Colombia (Graves 1982). This paper describes the first record of a rufous, 'hybrid-like' phenotype in *aterrima*, and also attempts to quantify the frequency of the grey-rumped '*nocticolor*-type' morph known to occur in females.

During the course of ornithological work in the montane forest of the Rio Mazan Valley, Azuay Province, Ecuador (2°52′S, 79°7′W; 3000–3500 m a.s.l.), described in detail by King (1989), 35 *aterrima* were trapped in August and September 1987 (birds were marked with British Trust for Ornithology rings for individual recognition). This subspecies is typically uniform glossy black, with a wholly black bill (Hilty & Brown 1986, Graves 1982) but one individual, trapped on 4 August (BTO No. 2353603) possessed some atypical plumage features and the following field description was taken:

Whole of head including nape, throat and upper breast glossy black. Mantle, back and scapulars dark glossy *blueish-black*, rump greyer, grading into blackish upper tail coverts. Tail black. Upperwings wholly dark glossy *blueish-black*, lesser coverts paler, *blueish-grey*. Axillaries whiteish, edged chestnut. *Whole of underparts excluding upper breast rufous-chestnut*, including flanks and crissum. Legs grey, iris dark brown, bill black. Culmen (from anterior edge of nostril) 8.05 mm; bill depth (at anterior edge of nostril) 4.20 mm; wing (max. chord) 65.0 mm; weight 11.7 g. Prominent cloacal protrusion. The specimen was not collected, but a photographic record was obtained by Mr J. Dauris.

The rufous underparts and blueish plumage of this individual suggested an affinity with *D. brunneiventris*, populations of which occur at both the northern and southern ends of the range of *aterrima* (Graves 1980b, 1982). However, the absence of rufous colour on the malars and upper breast, and of a pale supercilium, features typical of *brunneiventris*, suggested hybrid characters. Whilst limited hybridisation occurs between *aterrima* and the Peruvian *D. b. brunneiventris* (Graves 1982), Mazan is some 420 km north of this zone of secondary contact (and considerably further from the Colombian *D. b. vuilleumieri*).

In the Bolivian *D. carbonaria*, Graves (1982) found that the expression of 'hybrid-like' characters actually increased with distance from the zone of true hybridisation with *D. b. brunneiventris*, and hence concluded that the polymorphism was being maintained in *carbonaria* by factors other than introgression (probably pleiotropic and polygenic effects). In view of the distance from a source of *brunneiventris* genes, the individual from Mazan must similarly represent a heretofore undescribed morph of *aterrima*. No such 'hybrids' were found in *aterrima* examined by Graves (1982).

Of the 35 *aterrima* trapped at Mazan, 24 were adults or had completed the post-juvenile (prebasic I) moult and could hence be ascribed to a plumage morph. The frequency of the rufous morph was thus c. 0.04 (1/24). This probably represents a maximum figure, however, for of many further individuals seen in the field, no others showed any hybrid characters. This is significant considering the much higher figure of 0.49 found by Graves (1982) in *carbonaria*.

Two other *aterrima* trapped at Mazan showed grey rumps and some grey feathering of the crissum, but were otherwise typical in plumage, and consequently resembled the subspecies *D. humeralis nocticolor* of the Santa Marta Mountains, northern Colombia. Graves (1982) reported this morph as occurring in "a few female *aterrima*", but does not indicate its frequency.

A frequency distribution analysis of wing-length for the 24 adult *aterrima* (King, unpubl. data) using the methods described by Griffiths (1968) allowed 92% of the birds to be sexed (with an estimated 95% accuracy). The 2 '*nocticolor*-type' individuals, indeed, proved to be females, and the frequency of this morph in female *aterrima* from Mazan was estimated as 0.17 (2/12). Again, given the distance of Mazan *aterrima* from other members of the superspecies, Graves' (1982) suggestion that this phenotype cannot be directly attributed to introgression must indeed be correct.

Acknowledgements

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Notes on the Giant Hummingbird *Patagona gigas* in southern Ecuador

by J. R. King & S. J. Holloway

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King (1989) reports on the findings of an avifaunal survey of the Rio Mazan Valley, Azuay Province, Southern Ecuador (2°52′S, 79°7′W) undertaken in July–September 1986 and July–October 1987. These findings included the most southerly known records of the Giant Hummingbird *Patagona gigas* in Ecuador, and the following notes expand upon these records and include new ecological information for the species.

The only previous record of *P. gigas* from southern Ecuador is that of Ortiz-Crespo (1974), who reported one found dead near Cuenca (15 km due E of Mazan) on 20 October 1968 (believed killed some 2 weeks earlier) and who understood the species to be "not uncommon in the dry hills in this area". The species is also referred to by Ministerio de Agricultura y Ganaderia (1986), whose workers apparently recorded *P. gigas* on the paramo above the Llaviuco Valley (immediately north of Mazan—see King 1989), probably in the austral summer 1985/86, but no details are available.

We recorded several *P. gigas* daily throughout the paramo above Mazan from 13 September 1987 (not 14th as stated in King 1989) until we left the area on 10 October. Observations had been made on the paramo from 30 July and the sudden appearance in numbers of *P. gigas* in mid September strongly suggested a migratory influx. A similar influx occurs in the north of the country in October (Ortiz-Crespo 1974).

Mazan *P. gigas* were recorded over an altitudinal range of 3450–3800 m, the paramo in this area extending between 3400 and 4000 m. This represents a substantial increase in the known altitudinal range of the species in Ecuador, Ortiz-Crespo (1974) giving a maximum altitude of 3300 m, with only 2 records over 3000 m. However, this extension is not unexpected, with *P. gigas* regularly occurring up to 4000 m in the Peruvian altiplano (Dorst 1956).

Upon the Mazan paramo, individual *P. gigas* established large (up to 2 ha) territories around stands of *Puya hamata* (Bromeliacae) and these were vigorously defended from all other species of hummingbirds as well as from conspecifics. Ortiz-Crespo (1974) found that *Agave americana* (Amaryillidaceae) was the predominant foodplant in Northern Ecuador, and he related patterns of *P. gigas* abundance to those of *Agave* flowering. *Agave* does not occur in the Mazan area (Fleming 1987), and throughout the period of observation *P. gigas* was seen to feed solely from the flowers of *Puya hamata*.

In 1986, despite regular coverage up to the end of September, no *P. gigas* had been recorded at Mazan. Interestingly, in 1987 botanical seasonality was advanced by an estimated 2 months compared to the previous year (V. Fleming), and it seems likely that the consequent earlier flowering of *P. hamata* resulted in earlier movement of *P. gigas* onto the Mazan paramo in this year.

Ortiz-Crespo (1974) suggested that *P. gigas* would not have been an ancient component of the Ecuadorian avifauna given its apparent close association with *Agave*, a plant not introduced into Ecuador until the early sixteenth century. However, our observations suggest a similar association with *Puya* in the south of the country. A nectar analysis of flower species utilised by Mazan hummingbirds (Dauris & King, unpubl. data) found *P. hamata* to average 1.86 ml of 15.5% sucrose per flower ($n = 12$), and this compares with 2 ml of 16% sucrose/flower for *Agave* (Ortiz-Crespo 1974). In view of this similarity, and their physical size facilitating dominance over competitors, *P. gigas* may have found it easy to feed opportunistically on the newly planted *Agave* in sixteenth century Ecuador. Where *Agave* is now abundant, this hypothetical change in feeding pattern has resulted in a modern association between the 2 species which may be unrepresentative of the past; in the absence of *Agave, Puya* is clearly the preferred foodplant, as at Mazan (this study) and in Peru (Dorst 1956)—even in northern Ecuador, Ortiz-Crespo (1974) found 2 species of *Puya* (*P. aequatorialis* and *Puya* sp.) were the next most frequent foodplants after *Agave*.

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Serinus flavigula rediscovered

by J. S. Ash & T. M. Gullick

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The Yellow-throated Serin *Serinus flavigula* is known from 3 specimens only, collected over 100 years ago in a localised area below the eastern escarpment of the West Highlands of Shoa Province, Ethiopia. Not having been seen in the wild for over 50 years, by CITES criteria this species would have been considered extinct (Collar & Stuart 1985). On a brief visit to the area, accompanied by Mrs K. Gullick and Ato Girma Zekarias, we found that the species still existed close to, if not actually at, one of the original localities. The new and old records of this serin are detailed in Table 1.

To the best of our knowledge *S. flavigula* has not been looked for since it was last collected in 1886, probably largely because the rugged terrain was difficult of access. Now that food-aid is needed to be taken into the area, a track suitable for 4-wheel drive vehicles has been constructed.

At the height of the dry season, on 13 March 1989, at our first stop on reaching the Malca-Ghebdu watercourse (Table 1), a party of 3 seedeaters arrived at 09.00 on some bushes close to the almost dry rivulet. In excellent close views through binoculars and a telescope their identification, because of their small yellow throat patches and pale dull yellow rumps, was immediately obvious. A further 4 similar birds arrived soon after, and in the next 30 minutes 1–2 others seen occasionally may have been additional birds. From then until 13.00 no more were seen in searches at this and other sites along the stream as far as Ambokarra. Yellow-rumped Seedeaters *Serinus atrogularis* were common in the area.

We made the following observations:

Field characters. Small palish seedeaters with paler underparts; brown upperparts with rather faint longitudinal darker streaking on mantle; no conspicuous pale supercilium such as shown by the *S. atrogularis* present at the same time; rump pale dull yellow, apparently rather brighter at the sides, quite distinct from the bright yellow rumps of *atrogularis*; a pale yellow round area on the throat; breast buffish with a darker band below it of faint longitudinal brownish streaking; lower belly and vent pale greyish (whitish) and under tail coverts whiter; remiges and rectrices darker brown than upperparts; bill pale brown.

Behaviour and calls. The birds arrived from heights of 20–30 m to alight in bushes on the steep rocky slope of the stream. In contrast with *atrogularis* they were restless and intolerant of our approach and, whilst we were there, they did not come down to the water as the others did. They sat on the outer twigs of trees and bushes and did not seek shade. The only calls heard were described as "typical serin cells" from birds in flight.

Habitat. Broken arid country on rocky hillsides, along the valley of a small stream. The vegetation consisted of scattered medium-height acacias and other trees, 4–6 m high, interspersed with patches of thick scrub and bush. In the flatter areas there were patches of cereal stubble

TABLE 1
Records of the endemic *Serinus flavigula* in Ethiopia

	Locality	Coordinates	Alt (m)	n	Dates	Authority
a.	Kolla Aigaber	9°35′N, 39°53′E	?	1♀	16.x.1880	Salvadori 1884
b.	Ambokarra	9°31′N, 39°58′E	1400	1♀	17.v.1885	Salvadori 1888
c.	Malca-Ghebdu	c.9°34′N, 39°53′E	?	1	19.ii.1886	Salvadori 1888
d.	Malca-Ghebdu	9°32′N, 39°56′E	1500	7–10	13.iii.1989	Ash & Gullick

Notes

a. Kolla di Aigaber given by Salvadori is presumably an Italian interpretation. The coordinates given by Collar & Stuart (1985) and Erard (1974) are at 9°36′N, 40°04′E, but the site indicated to us would seem to be closer to the coordinates we cite. A literal translation of the Amharic name is 'a hot place where the people are not paying taxes' (i.e. a lowland area far below the administrative centre at Ankober where the people cannot be reached for tax claims).

b. These coordinates seem to be nearer to the actual site than those in Collar & Stuart (1985) and Erard (1974), which are 9°31′N, 40°09′E. There is another Ambokarra at c.9°23′N, 40°05′E, but this is perhaps less likely to be the collecting locality. A literal translation of the Amharic name is 'knife of Ambo', a locality where a local goddess (Ambo) was worshipped.

c. This stream has a variety of spellings, and is also known as Aia Guimu. The coordinates given in Collar & Stuart (1985) identify the stream, but the collecting locality may be at some other point along its over 45 km length between Ankober and the Awash River. Its Amharic name is translated as 'the route of the heroes'.

d. These coordinates are calculated after a journey of 19 km down the track from Ankober at a point where it crosses the stream.

from recent cultivation. This area, at 1400–1500 m, is about midway between the 3000 m high eastern edge of the West Highlands, only c.20 km away, and the hot dry plains at c.900 m of the Awash Valley in the Danakil area. Ankober is the site of the old capital of Ethiopia, and it is unlikely that land usage in the area has changed very much in the past few centuries.

Remarks. The yellow-throated *Serinus* species of Ethiopia have presented a complex taxonomic problem. Erard's (1974) reassessment has clarified the situation, and now Salvadori's (1888) *Serinus flavigula* is divided into *S. xantholaema* (Salvadori 1896), with which *S. collaris* (Reichenow) and *S. dimidiata* (Madarasz) are merged as synonyms, and monotypic *S. flavigula*. Collar & Stuart (1985) included *S. flavigula* in the Red Data Book as a Threatened Species.

The 3 (or 4) sites known so far for *S. flavigula* may encompass an area of as little as 30 km^2. Our searches to the south and east of this area in February 1989 failed to record any trace of this bird. Interestingly there are 2 other species of *Serinus* in the immediate vicinity, both known at present from restricted localities. One of them is the recently discovered *S. ankoberensis* (Ash 1979), still known only from an area of c.5 km^2 at around 3000 m near Ankober, 20 km to the west of the present *flavigula* site, and the other an as yet unidentified greyish seedeater with a white rump at c.900 m, 20 km more to the east. *S. ankoberensis* is locally common in flocks of up to 60 birds, and has not yet been found outside its restricted range; *S. flavigula* is apparently uncommon within its known range; the unknown *Serinus* is known from only 5 records, of 1–5 birds spread over 20 years.

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The Namibian subspecies of *Cisticola chiniana* (Smith), 1843

by P. A. Clancey

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The Rattling Cisticola *Cisticola chiniana* (Smith), 1843: Zeerust, western Transvaal, ranges from northeastern and eastern Africa to the south-central and southeastern aspects of the continent. A locally numerous species in *Acacia* and other open bush savanna types, it is the most highly polytypic species of the Afrotropical representation of the Cisticolidae. Fourteen races are admitted in the most recent assessment of its geographical variation (see Traylor 1986), but more recently, the number of forms has been raised to 16 by Parkes (1987), with the description of new taxa from the interior of Tanzania.

Work on the avifauna of Namibia (South West Africa) has drawn attention to the desirability of effecting major adjustments to the treatment of the *C. chiniana* subspecies present in the arid interior and west of the Southern African Subregion. The forms involved in the re-arrangement are *C.c. frater* Reichenow 1916: Damaraland, *C.c. huilensis* Rosa Pinto 1967: Lagoa Invantala, Huila, Angola, and *C.c. smithersi* Hall 1956: Pandamatenga, northeastern Botswana. From the entire territory of

Namibia, Traylor admitted the above listed races, with *C.c. frater* the most extensively distributed and *C.c. smithersi* present in the Caprivi Strip to the east and *C.c. huilensis* occurring marginally in the northwest along the lower Kunene R. In a report on a large collection from the mid-Okavango R. drainage of Namibia (Clancey 1980a), the local population of the Rattling Cisticola was referred to *C.c. huilensis*, and was so treated in the *S.A.O.S. Checklist* (Clancey 1980b). In order to resolve the conflict of opinion evident in the arrangements espoused in Peters' *Check-list* (Traylor 1986) and that in Clancey (1980b), I studied 70 specimens from a wide range of localities in Namibia and additional series from Botswana, Zimbabwe and other relevant territories in southern Africa.

With the material now available, especially that taken May–June, the variation of subspecific import is seen as relatively slight, with the populations present along the entire north of Namibia (including the Caprivi Strip) lighter, more tawny-headed and paler backed with finer dorsal streaking, than those more xeric elements occurring further south in both Namibia and Botswana. The variation pattern is, therefore, narrowly stratified south–north and extensively west–east. Of some significance, its disposition parallels closely that of the hygric *C.c. fortis* Lynes, 1930: Pedreira, Bié, central Angola, which extends from the Angolan plateau eastwards to southeastern Zaïre, northeastern Zambia and the extreme southwest of Tanzania. With northern Namibian, adjacent Angolan and Caprivi Strip birds all closely comparable, they require to be grouped into a single subspecies rather than 3 as at present, which arrangement results from the extension of the xeric *C.c. frater* to the mid-Okavango R. by most workers. This latter subspecies is actually narrowly restricted to the plateau of Damaraland, extending northwest to Kaokoland, where it merges into the paler Kunene R. drainage population placed by Traylor (and by Rosa Pinto) as *C.c. huilensis*. This intergradation shows up lucidly in the material brought back by the Bernard Carp/Transvaal Museum Expedition of 1951 and reported on by Macdonald & Hall (1957), the majority of the long series taken at Ohopoho (18°03′S, 13°45′E) and Sesfontein (19°07′S, 13°39′E). As given in Peters' *Check-list*, the range of *frater* is incorrect, and the names available for the northern pallid birds of Namibia: *smithersi* (1956)—eastern, and *huilensis* (1967)—western, are synonymous. All the northern Namibian and southwestern and southern Angolan populations will, therefore, take the earlier name of *C.c. smithersi*.

The geographical variation of the Rattling Cisticola in the South West Arid Zone of Africa is effected along strict isohyet contours and the availability of the main plant communities suitable to the species, with *C.c. smithersi* present in country with a slightly higher annual rainfall than that occupied by *C.c. frater*, which is c. < 500 mm. Should the data provided by Hall & Moreau (1970) be an accurate rendition of the species' distribution, the range of *frater* is clearly discontinuous or very largely so, with a population taxonomically similar to that of Damaraland occurring over southeastern Botswana to the east of the Kalahari. Introgression by *C.c. frater* is evident in samples from southwestern Zimbabwe (from near Bulawayo), but which are in the main referable to the nominate race. The distribution of *smithersi* is, on the other hand, continuous and covariant with those of a wide range of races of passerines occupying the same general region, much of which is an ecotone.

In the east of its range *smithersi* lies in juxtaposition to *C.c. bensoni* Traylor, 1964: Liuwa Plain, Zambia, at 14°–14°45′S, 22°–22°45′E, in which subspecies wing-length increases somewhat, the pileum and hind neck in non-breeding dress are markedly darker (Dresden Brown, *versus* near Clay Color—capitalised colours from Ridgway 1912), while the mantle and scapulars are more heavily streaked. The buffy grey dorsal feather-fringes are on the whole more vinaceous than in *smithersi*. While generally restricted to the Liuwa Plain of western Zambia, *bensoni* is assuredly more wide-ranging, lying as it does interposed between the ranges of *smithersi* and *fortis*.

In so far as the Namibian populations of *chiniana* are concerned, these may be arranged in 2 subspecies:

Cisticola chiniana frater Reichenow

Cisticola frater Reichenow, *Journ. f. Ornith.*, vol. 64, 1916, p. 162: Damaraland, here restricted to the Windhoek district, Namibia.

Non-breeding dress. Pileum and hind neck about light Buckthorn Brown, finely streaked with a paler shade; mantle and scapulars Cinnamon-Buff, streaked with blackish brown. Venter white, the breast, sides and flanks warm buff.

Breeding dress. Dorsal head and hind neck dark dull brown; back dull olivaceous grey, streaked with black. Venter white, washed laterally with grey.

Measurements. Wings in 10 ♂♂ in non-breeding plumage 62–71 (66.6), sd 3.35; tails of 10 ♂♂ 62–68 (65.3), sd 1.96; wings of 10 ♀♀ 52–57.5 (55.9), sd 1.48; tails of 10 ♀♀ 51–57 (54.4), sd 2.11 mm.

Range. The plateau of Namibia from northern Great Namaqualand (north of the Tropic), north to southern and western Kaokoland and to the Waterberg and Grootfontein district, southeast of Etosha National Park. Re-appears east of the Kalahari in southeastern Botswana reaching Molepolole and regions to the north, as some specimens from near Bulawayo, Zimbabwe, agree with it. Meets the nominate race in the southeast of Botswana in the general area of Gaborone.

Cisticola chiniana smithersi Hall

Cisticola chiniana smithresi (*sic*) Hall, *Ostrich*, vol. 27, 3, 1956, p. 104: Pandamatenga, northeastern Botswana at 18°32′S, 24°41′E.

Cisticola chiniana huilensis Rosa Pinto, *Bol. Inst. Invest. Cient. Angola*, vol. 4, 2, 1967, p. 30: Lagoa Invantala, Huila, Angola.

Non-breeding dress. Head-top and hind neck lighter and more tawny than in *frater* (close to light Clay Color, streaked buffy); back paler and with finer dark shaft-streaking, the feather-fringes Pinkish Buff. In the wings, the outer vanes of the remiges are lighter, less cinnamon, those of the tertials often markedly greyer.

Breeding dress. Pileum and hind neck darker than in the case of *frater* (Mummy Brown), and the mantle and scapulars clearer grey (about Drab), the streaking finer.

Measurements. Comparable to those given for *C.c. frater*.

Range. Southwestern and southern Angola from Mossamedes, Cunene and southern Huila, east, south of the *Brachystegia* savanna biome to southern Cuando-Cubango and southwestern Zambia to about the Zambezi, and Namibia from the Kunene R. valley and most of Kaokoland north of 19°S to Ovamboland, the Etosha National Park (south of Etosha to Outjo and Otjiwarongo, and to the east of the park at Gaub Rhenisch Mission and Oshivelo), east to Kavango, the Caprivi Strip, the delta system of the Okavango R., northern Botswana, thence south to the Makgadikgadi Salt Lake and Lake Dow; also northwestern Zimbabwe, south to Gwaai.

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Variation in *Pterodroma brevirostris* (Lesson), 1831

by P. A. Clancey

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The so-called Kerguelen Petrel *Pterodroma brevirostris* was first described by R. P. Lesson on a specimen obtained at the Cape of Good Hope (Jouanin & Mougin 1979), but derives its English name from the field work of Dr J. H. Kidder (? 1840–1889) on the islands of Kerguelen in 1874. Interestingly, when dealing with this then obscure gadfly petrel for his work on the oceanic birds of South America, Murphy (1936) had but a single example and that from the Kerguelen archipelago (? taken by

Kidder), and gave the type-locality as that island group. Later, in Murphy & Pennoyer (1952), this was adjusted to the Cape of Good Hope, in line with the comment of Jouanin & Mougin (1979) that the Lesson type-specimen came from there.

P. brevirostris is now known to breed on Gough Island, and, perhaps locally in the Tristan da Cunha Group to the north, and to the east of this in the Prince Edward Islands (on Marion), and in the Crozet Islands of Possession and East Is., and on Kerguelen. Beached birds are recorded from as far afield as Australia and New Zealand, but, strangely enough, the species was only added to the Southern African regional list in 1978, when a specimen from Bothasig, in the southwestern Cape, came to hand (see Cooper & Sinclair 1979), Lesson's record having been overlooked up to that time.

In late July and early August, 1984, a major 'wreck' of Kerguelen Petrels occurred along the entire southern Cape and Natal coast of southern Africa, this clearly involving large numbers of birds probably returning to their breeding grounds in the central South Atlantic and southern Indian Oceans; but it also included some uncommitted individuals from the previous breeding season still carrying natal down over the dorsal surfaces. Of significance is that a comparable 'wreck' of both Kerguelen Petrels and Blue Petrels *Halobaena caerulea* occurred in Victoria, Australia, at much the same time as that in South Africa (23 June–8 September 1984 (see Brown *et al.* 1986)). Weimerskirch *et al.* (1989) record that *brevirostris* visits the nesting grounds in the Kerguelen archipelago from about 23 August, eggs hatching towards the end of November and the young fledging in late January.

Of the many birds picked up by members of the public in South Africa, not all were saved as specimens, but, fortunately, 14 ♀♂ were preserved as skins and are in the collection of the Durban Natural Science Museum. In addition to these specimens, the Durban series of *P. brevirostris* comprises 12 breeders from Gough Is., 2 January birds from Marion, and 6 other breached examples from Cape and Natal coastal localities. Shortly after the 1984 'wreck', the assembled material was examined by Dr J. M. Mendelsohn, then Director of the Durban Natural Science Museum, who was able to demonstrate that it appeared to derive from 2 discrete populations. While the matter was not further pursued at that stage, a comment to this effect was included in the *S.A.O.S. Checklist Update* (Clancey 1987).

On revising the case on the basis of the series of breeders from Gough Is., it was ascertained that comparable birds breed on the islands of the Prince Edward Group (skins from Marion). Of the 6 beached birds from the Cape and Natal taken in years other than 1984, 5 are also similar to Gough and Marion examples, these characterised by the Mouse Gray/Quaker Drab (capitalised colours from Ridgway 1912) colour of the dorsal surfaces, the mantle and scapular feathers edged all round with light grey, this scaled surface contrasting sharply with the blackish brown tertials and adjacent wings. In respect of the 1984 'wreck' material, 6 further specimens also agree, but the remaining 8 specimens differ in having the dorsum darker and bluer grey (Deep Mouse Gray), the light scaling more sharply defined, and the mantle and scapulars less contrasted against the blacker tertials and wings. As this pattern of increased saturation and darkness is seen as covariant with that described recently in respect of the South Atlantic and southern Indian Oceans populations of the sympatric Soft-plumaged Petrel *Pterodrome mollis* (Gould) (see Clancey *et al.* 1981), the dark birds cast up on eastern Cape and Natal beaches in 1984 are from the east of the established breeding range (Gough & Tristan–Crozet & Kerguelen). As this variation in the southern elements of *P. mollis* has recently been recognised in the resuscitation of *P. m. dubia* Mathews (see Clancey *et al.* 1981, also Imber 1985), it is desirable to accord like taxonomic recognition to the analogous variation now determined as present in *P. brevirostris.*

A name for an eastern race of the Kerguelen Petrel is available in the binomen *AEstrelata kidderi* Coues, 1875: Kerguelen Islands, of which the more recently proposed *Pterodroma kidderi okahia* Mathews, 1935, based on a dark beached bird from Ohakia, New Zealand, is a synonym. Beached specimens of pelagic seabirds always present difficulty for later researchers when used as paratypical material in the framing of descriptions of new forms, Lesson's Cape of Good Hope type-specimen of the Kerguelen Petrel being no exception. The recent Bothasig, southwestern Cape, topotype agrees with Gough Is. material, and enables us to apply Lesson's *Procellaria brevirostris* of 1831 to the western breeding population with a measure of confidence in the absence of access to the now dated *Type* in Paris.

The taxonomy of *P. brevirostris* has a confusing history owing to the wide usage of the indeterminate *Procellaria lugens* Kuhl, 1820, wrongly based on Parkinson's drawings for it (see Bourne & Elliott 1965). In so far as this short communication is concerned, the generic name *Lugensa* Mathews, 1942, for *brevirostris*, is viewed as of subgeneric status, *contra* Imber (1985) and Clancey (1987). Bourne (1987), in a somewhat critical and spirited letter, has spoken out against the employment of internal organ peculiarities as criteria for the recognition of monotypic genera in the Tubinares, as in the case of *Lugensa* for *brevirostris*. The issue evidently warrants greater in-depth investigation, the convincing evidence advanced by Imber in favour of its usage notwithstanding.

Two moderately differentiated subspecies may be recognised in the Kerguelen Petrel:

Pterodroma brevirostris brevirostris (Lesson)

Procellaria brevirostris Lesson, *Traité d'Ornith.*, livr.8, 1831, p. 611: no locality. *Type* in the Museum National d'Histoire Naturelle, Paris, from the Cape of Good Hope.

Mantle and scapulars Mouse Gray/Quaker Drab, the feathers edged lighter grey, imparting a scaled effect. Back contrasting sharply with the blackish brown tertials and wings. Venter Mouse Gray (in October/November specimens).

Measurements. As given in Table 1.

Range. Breeds on Gough Island, and, perhaps, islands of the Tristan da Cunha Group, east to the Prince Edward Islands (most records from Marion). Recorded from South African coasts from the Cape to Natal & Zululand (late July–first week of September). Moves south after

TABLE 1

Morphometrics (mm) of the Kerguelen Petrel *Pterodroma brevirostris* (Lesson)

Locality		**Sex**	**n**	**Range**	**Mean**	**SD**
	Pterodroma brevirostris brevirostris					
Gough Is., S. Atlantic	Wing	♂♀	12	246–265	257.5	4.92
	Culmen	♂♀	12	26–29	27.2	0.98
	Tarsus	♂♀	11	36.5–42	38.5	1.50
	Tail	♂♀	12	98–110	104.3	3.54
	Middle toe & claw	♂♀	6	47.5–50	48.9	1.20
Marion Is., Prince Edward Islands, S. Indian Ocean	Wing	♀	2	254, 259	—	—
	Culmen	♀	2	24.5, 26	—	—
	Tarsus	♀	2	39, 40	—	—
	Tail	♀	2	102, 105	—	—
Cape & Natal coasts, South Africa	Wing	♂♀	9	248–264	255.6	5.56
	Culmen	♂♀	9	25–27.5	26.7	1.00
	Tarsus	♂♀	9	37–39.5	37.8	0.82
	Tail	♂♀	9	100–110	103.8	3.78
	Pterodroma brevirostris kidderi					
E. Cape & Natal coast (July/August 1984), South Africa	Wing	♂♀	9	247–267	256.1	6.31
	Culmen	♂♀	9	25–28.5	27.0	0.98
	Tarsus	♂♀	9	37–40	39.0	0.63
	Tail	♂♀	9	99–108	102.8	3.19
	Middle toe & claw	♂♀	6	46–50	48.0	1.49

Note. As will be appreciated from the above examples, mensural variation in the Kerguelen Petrel is extremely circumscribed and individual in nature. The mean wing-length of 32 beached ♂♀ specimens from Victoria, Australia, also of 1984, measured by Brown *et al.* (1986) is greater than in the samples dealt with above, being 260.7 mm ± 5.23, this deriving from tissue shrinkage in the Durban material. These authors also found that males of *P. brevirostris* had on average deeper bills than in the case of females ($\bar{x}$ 12.1, *versus* 11.7 mm), a factor not detected in Durban.

breeding to seas between 40°S and the Antarctic ice-shelf (Lambert 1984).

Pterodroma brevirostris kidderi (Coues)

AEstrelata kidderi Coues, *Bull. U.S. Natn. Museum*, No. 2, 1875, p. 28: Kerguelen Islands. (See Kidder, *ibid.*, No. 3, 1876, p. 15.)

Pterodroma brevirostris okahia (*sic*) Mathews (lapsus for *ohakia*), *Bull. Brit. Orn. Cl.*, vol. 56, 1935, p. 37: Ohakia = Ohakea, New Zealand.

As in the nominate race but darker and bluer grey above (Deep Mouse Gray), with more sharply etched scaling, and reduced contrast between the back and the blacker tertials and wings. Tail also blacker and ventral parts darker (Deep Mouse Gray in most). Similar in size.

Measurements. As given in Table 1.

Range. Breeds on Possession and East Island, in the Crozet Group, and on Kerguelen. Recorded from as far east as New Zealand, and Australian beached birds also probably refer in the main to *kidderi*. In the case of

South Africa, recorded from the eastern Cape (Cape Recife) and Natal in 1984, and from Durban, Natal, on 27 August 1980. Post-breeding disposition as in nominate race.

Acknowledgement

For first detecting the differential criteria outlined above, credit must go to Dr J. M. Mendelsohn, Director of the State Museum, Windhoek, Namibia. As the findings were never committed to print, I have felt it desirable now to resolve the issue in formal taxonomic terms.

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Field observations on the Degodi Lark *Mirafra degodiensis*

by J. S. Ash & T. M. Gullick

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No field observations exist for the Degodi Lark *Mirafra degodiensis*, a species known from only 2 specimens in the Muséum National d'Histoire Naturelle (Paris), and described several years after their collection in

Ethiopia (Erard 1975). They were collected at 350 m a.s.l. (450 m according to our calculations) on 24 November 1971 at 11 km east of Bogol Manya* on the road to Dolo Odo (at 4°34′N, 41°38′E), and considered by Erard to be a sibling species of Gillett's Lark *Mirafra gilletti*.

We spent part of 3 days, 26–28 February 1989, at the height of the dry season, in the Bogol Manya area. In the immediate area of the type locality, after 7½ hours searching, we found 2 birds 200–300 m apart on the second day. Superficially they resembled *M. gilletti*, but differed in certain plumage characters and behaviour. We concluded that they were not *gilletti* and, in the absence of a specimen, it was reasonable to suppose that they were *M. degodiensis*. Elsewhere during the previous few days we had watched closely both nominate *gilletti* and Fawn-coloured Larks *M. africanoides*. On 28 February a bird was relocated in one of the previous day's sites—it flew into a mist net but bounced out again; 2 others were found together about 1 km away, but were not caught.

A summary of our observations follows:

Habitat. Thin low acacias 3–4 m high with scattered *Commiphora* and other bush species; very dry, with neither water in the streambeds nor any low vegetative ground cover anywhere. There were only a very few other passerines in the area including: *Spreo albicapilla, Eremomela flavicrissalis, Nilaus afer, Nectarinia hunteri, Pycnonotus barbatus, Dinemellia dinemelli, Cercotrichas galactotes, Dicrurus adsimilis, Emberiza poliopleura* and *Oenanthe oenanthe*.

General appearance and behaviour. A small, slim, dull-coloured lark (generally duller and appearing smaller than *M. gilletti*), almost entirely fearless of our approach, and very unobtrusive. Birds observed fed on the ground below the shade of the overhanging small acacia trees and the bushes, but ran very fast when disturbed or when moving across a patch of hot sunlit ground in the heat of the day. If hard-pressed they flew off just above ground level for a short distance. The tail did not appear to be inordinately short. One bird once alighted in a bush.

Calls. None heard.

Description. Upperparts dull brown with darker brown streaks and paler edges to feathers; wing coverts with a row of 6 dark central spots; remiges and rectrices darker brown with paler (buffish) edges, broader on the former. Top of the crown faintly rufous and streaked, supercilium pale, and a near-black eye-line; ear coverts slightly tinged rufous; nape tinged buff, streaked and paler than the crown. A hint of a pale half collar extended from the throat to below the ear coverts; rest of the underparts unmarked creamy, except the breast which had blurred short brown streaks extending onto the side of the neck. Bill fawn-coloured; legs pinkish-red.

Remarks. Behaviour may change with the stage of the breeding cycle or for other reasons, but *M. gilletti*, including birds we had seen on the previous few days, has an 'extroverted' manner, singing from bush tops, restlessly flying about above the bushes over a rather wide area. We were impressed by the 'introverted' manner of the Bogol Manya birds, and by this feature, combined with their relatively uniform appearance, we concluded we had seen *degodiensis*.

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*There are several spellings for this locality. It is Bogol Manya in Collar & Stuart (1985), following the Times Atlas of the World, but Bogol Manyo in the U.S. Army Map Service map No. NB-37/6 (based on Italian and British Army maps). Since it was named after one of the engineers, probably not an Italian, 'the great Bogol', on Mussolini's Strada Imperiale, the original orthography was almost certainly Bogol Magno.

Erard (1975) emphasizes that (in specimen skins) the relatively short tail is diagnostic in separating this species from *gilletti*, and does not give any other unequivocal characters which might be used in the field. He states: "Ressemble à *Mirafra gilletti* Sharpe mais est beaucoup plus petit. Sa coloration rappelle celle de la race nominale de cette espèce mais est plus claire et plus fauve. La striation des parties supérieures est plus étroite et moins dense. La poitrine est plus grivelée que striée, les taches étant chamois et obsolètes. Le caractère distinctif réside dans la remarquable brièveté relative des rectrices. Les rémiges secondaires sont également plus courtes."

We forwarded our description and notes, together with a series of 8 colour photographs of our bird taken by Mrs Katie Gullick, to Dr Christian Erard, who kindly compared them with his specimens in Paris. He made the following comments:"The habitat and behaviour of the larks you observed at Bogol Magno (*sic*) are in accordance with what I know of *degodiensis*. The fact is that your bird (photographs 2 and 8) looks longer-tailed than the 2 skins we have here. Otherwise the colouration of the upperparts and wings matches that of *degodiensis* apparently better than that of nominate *gilletti*: see photographs 4, 6, 7, and especially 3. The light hind-neck, giving a whitish collar, is noticeable and seems to me more pronounced than in nominate *gilletti*. From photographs 1, 2 and 8, the breast pattern seems to match that of *degodiensis* better than that of nominate *gilletti*: spots look dark tawny rather than brown."

His letter continued: "I admit that without tail measurement *degodiensis* is very difficult to identify. I remember that when I examined my specimens, I was somewhat hesitant to describe a new species but Charles Vaurie who compared the specimens with me convinced me (especially when comparing them with nominate *gilletti* from between Neghelle and Filtu, collected during the same trip), so [I] did the multivariate analysis.

So if photographs 3, 4 and 1 give a correct view of the colouration (colours in photographs 2, 6, 7 and 8 could be a little altered by light, unless you photographed several birds) and if the relatively short tail of *degodiensis* is not a good field character, then your bird is *degodiensis*. I think that you did indeed meet this species."

M. degodiensis is an Insufficiently Known Threatened Species in the Red Data Book (Collar & Stuart 1985). The 4 birds we saw were within a distance of 1 km and within a 200 m strip alongside the road. No others were seen up to 1 km beyond, but the species could easily be overlooked owing to its skulking habits. It may be that its only known range is within an area of some few km^2, and it is possibly significant that the type locality of *degodiensis* is surrounded by an area extending from it of up to 50–100 km from which there are no records of *gilletti*. Since the publication of Erard's (1975) distribution map for *M. gilletti*, its known range has increased appreciably, notably to the north and east in Somalia (Ash & Miskell 1983) and to the south into Kenya (Miskell & Ash 1985). It is of special interest that *M. degodiensis* does not appear now merely on the southwestern edge of the range of *gilletti*, but is surrounded by that species.

A possible threat to the habitat in this area may result from the increased human population and a resultant increase in grazing pressure and demand for fuel wood, but there was no indication that this is likely to occur in the short term.

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We are most grateful to: Dr N. J. Collar, for providing reprints and for commenting on a draft of this paper; Dr Christian Erard, for checking our description and the photographs against the specimens in Paris, and for his comments; and Mrs K. Gullick, for the photographs of the bird.

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Two birds new to the Brazilian avifauna

by Lenir A. R. Bege & Beloni T. Pauli

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In the last few years we have accumulated several observations on the avifauna of southern Brazil, based on the field work performed by the Fundação de Amparo à Tecnologia e ao Meio Ambiente (FATMA), Santa Catarina. Two of these records are noteworthy, and represent new additions to the Brazilian avifauna.

AUSTRALASIAN GANNET *Sula serrator*

Typical of the Australasian region (Nelson 1978) this gannet has occasionally occurred in southwestern Africa and off Marion and Crozet Islands (Harrison 1983). Thus, it was surprising to record an isolated specimen of this gannet at the Moleques do Sul Islands (c. 27°51′S, 48°26′W), 12 km off the coast of Santa Catarina, southern Brazil, 21–23 August 1986. So far as we know, this individual apparently remained around these islands until collected on 27 June 1987 at the site where it was first observed. According to the South American ornithological literature, this bird, an adult male now housed in the collection of Museu Nacional (MN 36.164), is the first record of the species for the Americas (Hellmayr & Conover 1948).

ANDEAN FLAMINGO *Phoenicoparrus andinus*

In South America, the Andean Flamingo has been recorded in southwestern Peru, northern Chile, southwestern Bolivia and northwestern Argentina (Blake 1977, Nores & Yzurieta 1980).

On 19 May 1989 we obtained a very emaciated juvenile (weight 1.2 kg) from Erval Velho (c. 27°13′S, 51°23′W), Santa Catarina, southern Brazil. This specimen, now housed in the Museu Nacional (MN 36.548), showed 3 colour rings on the left tibia (blue, black, red), and according to the Corporacion Nacional Forestal (CONAF), Chile, it was banded around the fifth month of life in the Salar Punta Negra, Antofagasta. This seems to be the first record of the species in Brazil.

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New or noteworthy bird records from the Matogrosense region of Paraguay

by Floyd E. Hayes, Steven M. Goodman & Nancy E. López

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The southward-flowing Río Paraguay divides the Republic of Paraguay into 2 different regions: the Chaco to the west and the Orient to the east. The northeastern corner of the Paraguayan Chaco, herein referred to as the Matogrosense region of Paraguay, is a relatively flat region characterized by semi-humid, medium-height (10–20 m) forests and periodically inundated wetlands that are contiguous with the extensive Pantanal of adjacent Brazil and Bolivia (López 1986). Although the region remains relatively unknown to zoologists, recent exploration has demonstrated that the avifauna is partially distinct from that of the more xeric portions of the Chaco to the west, and has strong affinities with the avifauna of the Pantanal further north.

Early reviews of the avifauna of the Paraguayan Chaco (e.g., Salvadori 1895, Grant 1911, Laubmann 1939, 1940, Short 1975) contained little information on the Matogrosense region. Recently, López (1985) reported on the relative abundance and habitat use of 90 species in the Bahía Negra area, Departamento (Dpto) Alto Paraguay. We report distributional records and natural history notes on 28 species of birds from the Matogrosense region; 6 species and one subspecies are documented (on the basis of specimens or photographs) from Paraguay for the first time. Unless stated otherwise, records or specimens were obtained in the Dpto Alto Paraguay during expeditions by: N.E.L. 18 Sep to 4 Oct 1984; by F.E.H. 16 Jun to 2 Jul 1988, 11–19 Aug 1988, 27–29 Oct 1988, and 27 Jan to 7 Feb 1989; by S.M.G. 10 Sep to 15 Oct 1988; by Jorge Escobar Argaña (J.E.A.) 16–30 Jun 1989 and 6–12 Oct 1989; and by F.E.H., J.E.A. and John Luís Ramírez (J.L.R.) 11–18 Aug 1989.

Acronyms used in the species accounts include: AFARP = Archivo Fotográfico de Aves Raras del Paraguay, San Lorenzo; FMNH = Field Museum of Natural History, Chicago; MNHNP = Museo Nacional de Historia Natural del Paraguay, San Lorenzo; UMMZ = University of Michigan Museum of Zoology, Ann Arbor; and VIREO = Visual Resources in Ornithology, Philadelphia. Weights of specimens collected by S.M.G. are listed in Storer (1989). Nomenclature and sequence of species follow Altman & Swift (1989).

LITTLE BLUE HERON *Egretta caerulea*

On 18 August 1988, F.E.H. saw an adult *E. caerulea* in non-breeding plumage as it foraged alone at Bahía Negra, 20°14′S, 58°10′W. The bird was photographed later as it roosted in trees with *E. thula* and *Casmerodius albus*. The all-dark plumage and pale base of the dark bill of *E. caerulea* are apparent in the colour photographs, which are on file at VIREO (x08/2/001) and at MNHNP (AFARP 4). This species breeds in northern South America, and has been recorded as far south as Argentina and Uruguay (Hancock & Kushlan 1984). This is the first documented record for Paraguay, for which the only previous report is of several observed in December 1983 in the southern Paraguayan Chaco, Dpto Presidente Hayes (Peris & Suárez 1985). *E. caerulea* is probably a rare migrant rather than a breeding resident in Paraguay.

BOAT-BILLED HERON *Cochlearius cochlearius*

At dusk on 18 June 1988, F.E.H. viewed one *C. cochlearius* from a distance of 5 m as it perched in a tree at the edge of a marsh at Retiro Potrerito, c. 13 km SSW of Bahía Negra, 20°20′S, 58°13′W. J.E.A. saw another bird from 20 m at the same locality on 9 October 1989. The large, thick bill of this species is diagnostic. The only previous report from the Paraguayan Chaco is from the Río Pilcomayo, Dpto Presidente Hayes (Bertoni 1914). Laubmann (1939) reported an immature collected along the Río Paraguay between Concepción, Dpto Concepción, and Asunción, Dpto Central. An immature was taken by N.E.L. on 13 August 1983 along the east bank of the Río Paraguay at Concepción, 23°25′S, 57°17′W (MNHNP 762). The occurrence of this species along the Río Paraguay and in nearby marshes suggests that it may be a breeding resident in the eastern fringes of the Paraguayan Chaco.

COSCOROBA SWAN *Coscoroba coscoroba*

On 28 September 1988, S.M.G. noted a flock of 20 white swans flying southwestwards high overhead at Riacho Ramos, 6 km southeast of Bahía Negra, 20°16′S, 58°07′W. This appears to be the northernmost record of this species in South America. The only previous record for Paraguay is a female collected 65 km east of Filadelphia, Dpto Presidente Hayes, on 10 May 1959 (Steinbacher 1962). This species appears to be a migrant or winter resident from areas south of Paraguay rather than a breeding resident.

GRAY-HEADED KITE *Leptodon cayanensis*

F.E.H. observed singletons at Retiro Potrerito on 31 June and 15 August 1988; near Cerrito, 21°27′S, 57°56′W, on 11 August 1988; and on the Brazilian side of the Río Paraguay 2 km south of Porto Murtiñho, Mato Grosso do Sul, 21°43′S, 57°50′W, on 11 August 1988. The only previous records in the Paraguayan Chaco are a male collected on 11 August 1931 at Puerto Casado, Dpto Alto Paraguay (Laubmann 1939) and an immature male collected at Estancia Deolinda (exact locality not located; Gyldenstolpe 1951). *L. cayanensis* appears to be an uncommon resident in the eastern fringes of the Matogrosense region.

ORANGE-BREASTED FALCON *Falco deiroleucus*

On 19 June 1988, F.E.H. saw a large falcon with a dark belly band from about 40 m away as it flew over a small clearing at Retiro Potrerito. It appeared to be as large as *F. femoralis*, but lacked the eye stripe typical of that species. The large size and bright orange breast distinguished it from the smaller and paler-breasted *F. rufigularis*. The only previous record of *F. deiroleucus* in the Paraguayan Chaco is from Orloff, Dpto Boquerón (Hellmayr & Conover 1949).

HYACINTH MACAW *Anodorhynchus hyacinthinus*

On 11 August 1988, F.E.H. noted 3 large, uniform purplish-blue macaws with yellowish facial patches flying south along the Brazilian side of the Río Paraguay near the Paraguayan village of Puerto María, 21°37′S, 57°56′W. The birds were viewed from about 75 m for about 15 sec as they flew southwest across the river into Paraguay. Although no specimen records are known from Paraguay, there are several sight records from Dpto Concepción (López 1989). The Río Paraguay and the *campos cerrados* of Dpto Concepción apparently form the southwestern limit of this species' distribution, which includes much of west-central Brazil (Meyer de Schauensee 1970).

BLUE-WINGED PARROTLET *Forpus xanthopterygius*

On 18 June 1989, J.E.A. observed 2 *F. xanthopterygius* fly into a tree in the forest at Retiro Potrerito. The small size, short tail and high-pitched voice distinguished it from other sympatric psittacids. The only previous report from the Paraguayan Chaco is from Benjamin Aceval, Dpto Presidente Hayes (Bertoni 1930). Its distribution in the Chaco is probably restricted to the more humid areas near the Río Paraguay; to the east it is an uncommon resident.

CANARY-WINGED PARAKEET *Brotogeris versicolurus*

At Retiro Potrerito, small flocks were seen by F.E.H. on several occasions in June and August 1988, and by J.E.A. in June and October 1989. In January and February 1989, flocks of up to 25 birds were frequently seen by F.E.H. at Bahía Negra. Elsewhere F.E.H. noted 2 at Puerto Leda, 20°22′S, 58°00′W, on 28 August 1988. These appear to be the first records for the Paraguayan Chaco; it is a common resident east of the Río Paraguay.

COMMON PAURAQUE *Nyctidromus albicollis*

At dawn on 17 August 1988, F.E.H. heard several nightjars vocalizing in the forest at Retiro Potrerito; the calls were typical of *N. albicollis* (Hardy *et al.* 1986). On 30 September 1988, S.M.G. collected an adult male *N. a. derbyanus* (UMMZ 226560) at Puerto Ramos, 4 km south of Bahía Negra, 20°16′S, 58°08′W. On 5 October 1988, S.M.G. flushed up several *N. albicollis* at Estancia Cerrito, 3.5 km SSW of Puerto Coeyú, 21°27′S, 57°56′W. On 11 August 1989, F.E.H. and J.E.A. observed a vocalizing male at Puerto 14 de Mayo, 20°20′S, 58°06′W; also a single bird was heard each night at Retiro Potrerito 13–17 August 1989, and another at Bahía Negra 17–18 August 1989. These are the first records from the Paraguayan Chaco. East of the Río Paraguay it is a common resident.

AMERICAN PYGMY KINGFISHER *Chloroceryle aenea*

On 4 October 1984, N.E.L. saw a single *C. aenea* flying across the Río Paraguay 5 km north of Bahía Negra. On 30 September 1988, S.M.G. collected an adult male (UMMZ 226553) at Puerto Ramos. The bird was netted in a corridor cleared through secondary forest, c. 20 m from a marsh and 200 m from the Río Paraguay. These are the first records from Paraguay. *C. aenea* occurs throughout much of northern South America south to the Mato Grosso and southern Brazil (Naumburg 1930, Meyer de Schauensee 1970).

BLUE-CROWNED MOTMOT *Momotus momota*

Singletons were seen by F.E.H. on 22 and 26 June 1988, and by F.E.H. and J.L.R. on 15 August 1989, in forest undergrowth at Retiro Potrerito. Each was observed from as close as 5 m; its bright blue-and-black crown and tail rackets were well observed. Short (1975) stated that *M. momota* occurred in the northern Paraguayan Chaco, but without supporting evidence. This species appears to be a rare resident of the Matogrosense region. It is widespread to the north, east and west (Meyer de Schauensee 1970).

RED-BREASTED TOUCAN *Ramphastos dicolorus*

On 22 June 1989, J.E.A. saw a single *R. dicolorus* perched atop a tree in a clearing near Retiro Potrerito. The distinctive pattern of the yellow, orange and red underparts was well observed. This appears to be the first record for the Paraguayan Chaco; east of the Río Paraguay it is an uncommon resident.

GREEN-BARRED WOODPECKER *Colaptes melanochloros*

N.E.L. collected an adult female (MNHNP 609; 80 g) on 2 October 1984 in a palm savanna at Estancia Doña Julia, 5 km north of Bahía Negra, 20°11′S, 58°09′W. The specimen was identified by M. S. Foster as *C. m. nattereri*, based on its relatively small size, short bill and tail (Short 1975, 1982). Up to 3 others were seen by F.E.H., J.E.A. and J.L.R. at Puerto 14 de Mayo on 12 and 17 August 1989. This is the first record of this subspecies for Paraguay; its range coincides with the Pantanal of eastern Bolivia and Mato Grosso, Brazil (Peters 1948).

PLAIN-CROWNED SPINETAIL *Synallaxis gujanensis*

F.E.H. found *S. gujanensis* to be the second most common forest bird at Retiro Potrerito, with an estimated density of 190 birds/km^2 based on transect counts. The birds occurred singly or in pairs (group size $\bar{x} = 1.1$, SD $= 0.33$, range $= 1$–2, $n = 49$) in dense forest undergrowth. An unsexed adult (MNHNP 834; 15.8 g) was collected at Retiro Potrerito by F.E.H. on 21 June 1988. Specimens obtained by S.M.G. include an adult female (UMMZ 226551) at Puerto Ramos on 30 September 1988, and an adult male (UMMZ 226638) from 3 km NNW of Estancia Fonciere, Dept. Concepción, 22°24′S, 57°51′W, on 12 October 1988. The only previous report from the Paraguayan Chaco is of a specimen taken from atop a nest "while its mate hopped about nearby" on 16 September 1920, 80 km west of Puerto Pinasco, Dpto Presidente Hayes, by Wetmore (1926). These records apparently pertain to the southernmost race *S. g. albilora* of the Brazilian Mato Grosso and adjacent Dpto Concepción, Paraguay.

STREAKED XENOPS *Xenops rutilans*

Singletons were observed by F.E.H. in the forest canopy of Retiro Potrerito on 20, 22 and 26 June 1988, 15 August 1988 and 14 August 1989. The birds were distinguished from other *Xenops* spp. by the stout, upturned mandible, streaked underparts, crown and mantle and the entirely rufous tail. These are the first records for the Paraguayan Chaco; it is an uncommon resident east of the Río Paraguay.

MATO GROSSO ANTBIRD *Cercomacra melanaria*

An adult male (MNHNP 182) was taken by N.E.L. on 3 October 1984 at Estancia Doña Julia. S.M.G. collected another adult male (UMMZ 226494) on 25 September 1988 at Estancia Inmaculada Concepción, along the Río Negro, 17 km north of Bahía Negra, 20°05′S, 58°10′W. A third specimen, an immature male (UMMZ 226518), was obtained by S.M.G. on 28 September 1988 along the edge of Riacho Ramos. In January and February 1989, F.E.H. saw or heard several pairs daily along the river's edge near Bahía Negra and in a flooded forest 1 km west of Bahía Negra. These birds usually occurred singly or in pairs in the lower strata of forest, and were always near water. Their calls consisted of a series of nasal antbird-like grunts (e.g., "*er-er-er* . . ."), of variable pitch. These are the first records for Paraguay. *C. melanaria* is known from

Bolivia and the Mato Grosso of Brazil (Naumburg 1930, Meyer de Schauensee 1970).

WHITE-BACKED FIRE-EYE *Pyriglena leuconota*

On 28 June 1988, F.E.H. observed a pair as they followed an ant swarm amongst thick bromeliads on the forest floor at Retiro Potrerito. Both birds bobbed their tails frequently, and gave a dry rattle call when alarmed. A female *Taraba major* and a *Dendrocolaptes picumnus* were also associated with the ant swarm. The male *P. leuconota* was distinguished from the similar *P. leucoptera* by the absence of white on the wings, and from *C. melanaria* by its red iris and the lack of white-tipped rectrices. The female, an adult, was collected (MNHNP 839; 26.8 g) and distinguished from other female *Pyriglena* spp. by the white bases to the central back feathers; it had the well-defined whitish eyebrow typical of the southern race *maura*, which inhabits eastern Bolivia and central Mato Grosso (Short 1975). This record represents the southernmost limit of the species' known range, and is the first for Paraguay.

COMMON TODY-FLYCATCHER *Todirostrum cinereum*

On 20 September 1988, M. W. Nachman and S.M.G. observed a pair gathering nest material at Colonia Carmelo Peralta, 21°41′S, 57°54′W. One of the birds, an adult female with a well developed brood patch, was collected (UMMZ 226463). On 7 October 1988, S.M.G. collected another specimen, an adult male (UMMZ 226592), on an island in the Río Paraguay, 3.5 km SSW of Puerto Valle-Mí, Dpto Concepción, 22°12′S, 57°55′W. Both specimens are referable to *T. c. coloreum*. On 30 January 1989, F.E.H. photographed 2 pairs (AFARP 9, 10) 1–2 km north of Bahía Negra. On 12 August 1989, J.L.R. obtained an unsexed adult (MNHNP 895; 8.2 g) at Puerto 14 de Mayo. On 17 August 1989, F.E.H. and J.E.A. noted a pair at Retiro Potrerito, and later the same day F.E.H. saw another pair at Puerto 14 de Mayo. The only previous records for Paraguay are a specimen from Cabo Emma, Dpto Alto Paraguay (Grant 1911) and another from Puerto Casado (Zotta 1950); these records were overlooked by Meyer de Schauensee (1970).

STREAMER-TAILED TYRANT *Gubernetes yetapa*

On 24 September 1984, N.E.L. saw 3 in a marsh 100 km west of the Río Paraguay at Estancia Doña Julia. The rufous-bordered white throat and long tail of each bird were noted. Although Short (1975) considered this species a Chaco resident, this appears to be the first record of *G. yetapa* in the Paraguayan Chaco. It is a common resident of marshes in eastern Paraguay.

CRESTED BECARD *Pachyramphus validus*

On 28 January 1989, F.E.H. observed a female from 6 m for 5 min in forest 2 km west of Bahía Negra. The dark grey crown contrasting with the creamy cheeks, buffy underparts and rufous back were diagnostic. The only previous report in the Paraguayan Chaco is of a female specimen collected from Algarobo, Dpto Boquerón, in the western Chaco (Steinbacher 1968), identified as *P. v. validus*; however, Short (1975) stated that the western form *audax* was distinguishable from the eastern race *validus* only in males. Because no records are known from the central Paraguayan Chaco, we suspect that *audax* is the race more likely to occur in the western fringes of the Paraguayan Chaco, whereas nominate *validus*, which occurs in Dpto Santa Cruz, Bolivia and eastern Paraguay, is more likely in the eastern Chaco.

WHITE-WINGED SWALLOW *Tachycineta albiventer*

N.E.L. obtained an adult male (MNHNP 225; 13.0 g) on 3 October 1984 along the bank of the Río Paraguay at Estancia Doña Julia. At Bahía Negra, F.E.H. observed a pair along the Río Paraguay on 17 June, 18 August, and 28 October 1988. On 4 October 1988, S.M.G. collected a breeding pair (UMMZ 226575, 227529) at Estancia María Elena, 5 km NNE of Puerto Mihanovich, 20°45′S, 57°57′W. The only previous report from Paraguay is from the Río Paraná in the southeast (Bertoni 1914). These records provide the first documentation of *T. albiventer* in Paraguay. This species is a widespread resident of lowlands in South America (Meyer de Schauensee 1970).

CHILEAN SWALLOW *Tachycineta leucopyga*

On 12 August 1988, F.E.H. viewed 2 from about 6 m for 5 min as they flew about and perched on a post at Puerto 14 de Mayo. Each bird possessed a white rump, but lacked the white supraloral streak of *T. leucorrhoa* and white wing patches of *T. albiventer,* both of which were also seen along the river. *T. leucopyga* breeds in Chile and southern Argentina, wintering as far north as Bolivia (Ridgley & Tudor 1989). The only previous record in Paraguay is from Asunción (Bertoni 1914). *T. leucopyga* probably mixes with the large flocks of *T. leucorrhoa* that winter along the Río Paraguay and adjacent wetlands.

THRUSH-LIKE WREN *Campylorhynchus turdinus*

Found to be relatively common in palm savannas, marshes and grasslands bordering the Río Paraguay in the Matogrosense region, and noted in groups of up to 5; several individuals were seen attending bulky nests in palm crowns in January 1989. On 29 September 1984, N.E.L. collected an adult male (MNHNP 222; 35.5 g) at Estancia Doña Julia. Specimens taken by S.M.G. include 2 adult females (UMMZ 226514, 227876) on 28 September 1988 at Riacho Ramos; an adult male (UMMZ 226581) on 5 October 1988 at Estancia Cerrito; and an adult male (UMMZ 227535) on 10 October 1988 from 4 km northwest of Puerto Fonciere, Dpto Presidente Hayes, 22°24′S, 57°52′W. All specimens collected are referable to *C. t. unicolor*, the form occurring in the Mato Grosso of Brazil and Bolivia (Naumburg 1930). N.E.L. and F.E.H. have observed this bird on both sides of the Río Paraguay as far south as Concepción. The only previous specimen from Paraguay was taken on 28 September 1986 near Pozo Colorado, Dpto Presidente Hayes, in the central Paraguayan Chaco (Contreras & Contreras 1986). Sight records have been reported from the Río Apa area of Paraguay (Meyer de Schauensee & Mack 1982, Ridgely & Tudor 1989).

FAWN-BREASTED WREN *Thryothorus guarayanus*

On 20 June 1988, F.E.H. collected an adult female (MNHNP 830; 11.0 g) and an unsexed adult (MNHNP 831; 11.2 g) in dense forest undergrowth at Retiro Potrerito. Subsequent surveys there revealed it to be the most common forest bird in the area, with an estimated density of 265 birds/km^2. It appeared to be less common in the forests near Bahía Negra. The birds usually foraged in pairs or small groups ($\bar{x} = 1.96$, SD = 0.87, range = 1–4, $n = 26$) in the lower strata of forests with dense undergrowth (e.g. bromeliads); on a few occasions they were observed in relatively open brush. The variable yet distinctive song consisted of a loud, cheerful series of 3–4 notes (e.g. "*wee-joo-jeer*") repeated 5–20 times. Other calls included a short "*chort*" and a typical wren-like rattle when alarmed. On 15 August 1988, one was observed repeatedly carrying fine twigs to a large (c. 25 × 25 cm), partially constructed nest suspended about 4 m above the ground. The species' range includes much of Bolivia and adjacent western Mato Grosso (Meyer de Schauensee 1970); this is the first record for Paraguay and the southernmost for the continent.

FLAVESCENT WARBLER *Basileuterus flaveolus*

On 20 June 1988, F.E.H. observed a single *B. flaveolus* in dense forest undergrowth at Retiro Potrerito. The only previous records in the Paraguayan Chaco are from Benjamin Aceval, Dpto Presidente Hayes (Bertoni 1930), and a pair collected from Puerto Sastre, Dpto Alto Paraguay (Laubmann 1940). This species appears to be a rare resident in the Matogrosense region, where it is restricted to the more humid forests near the Río Paraguay. East of the river it is an uncommon resident.

SILVER-BEAKED TANAGER *Ramphocelus carbo*

On 30 January 1989, F.E.H. observed a pair from 6 m for c. 3 min in brush along the bank of an unnamed stream 1 km north of Bahía Negra. The male's deep crimson throat and breast and silvery base of the mandible were diagnostic. This is the first record for the Paraguayan Chaco. Although *R. carbo* is widely distributed to the north and east of Paraguay (Meyer de Schauensee 1970), the only previous record for Paraguay is from Puerto Bertoni, Dpto Alto Paraná, in the southeast (Bertoni 1914).

HOODED TANAGER *Nemosia pileata*

At Retiro Potrerito, F.E.H. noted a pair on 20 June 1988 and an adult male on 14 August 1989. They were foraging with mixed species flocks in the forest canopy. The white forehead and lores of the males distinguish this species from the superficially similar *Poospiza melanoleuca*. The report of *N. pileata* at Benjamin Aceval, Dpto Presidente Hayes, by Bertoni (1930) appears to be the only previous record in the Paraguayan Chaco. Its occurrence in the Chaco is probably restricted to the more humid forests near the Río Paraguay; to the east it is an uncommon resident.

CRESTED OROPENDOLA *Psarocolius decumanus*

F.E.H. observed a flock of 10 at Retiro Potrerito on 22 June 1988, and single birds at Retiro Potrerito on 26 June 1988 and at Bahía Negra on 18

August 1988. On 7 October 1989, J.E.A. noted a single bird 7 km west of Puerto 14 de Mayo. The large size and mostly yellowish tail are diagnostic of this species. Although considered a resident of the Chaco by Short (1975), the only published record for the Paraguayan Chaco is from Benjamin Aceval, Dpto Presidente Hayes (Bertoni 1930). A specimen in FMNH (153050) was taken on 9 October 1940 at Fortín Orihuela, Dpto Presidente Hayes, 23°25′S, 58°40′W. *P. decumanus* is an uncommon resident in eastern Paraguay, and appears to be restricted to the eastern fringes of the Paraguayan Chaco.

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First record of *Upucerthia validirostris* from Bolivia and new Bolivian distributional data

by J. Cabot

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This paper reports the first record for Bolivia of the Buff-breasted Earthcreeper *Upucerthia validirostris*; also new distributional data for some bird species following a departmental criterium. The number of bird species currently reported from Bolivia is 1257 (Remsen & Traylor 1989). Voucher specimens, where noted, are deposited in the collections of Estación Biológica de Doñana (EBD). Nomenclature follows Remsen & Traylor (1989).

WHITE-TUFTED GREBE *Rollandia rolland*

Recorded in Andean highlands from La Paz, Oruro, Cochabamba and Tarija Dpts (Remsen & Traylor 1989). Twenty-two individuals were seen on 16 November 1982 at Laguna Katalcito, c. 4000 m, province Sud-Lìpez—the first record for Potosí Dpt.

SILVERY GREBE *Podiceps occipitalis*

Known from the highlands of Cochabamba, Oruro and Potosí Dpts (Remsen & Traylor 1989) and for a single locality in La Paz: Ulla-Ulla reserve (Ribera & Hanagarth 1982, Serrano & Cabot 1982). An additional record from La Paz is of 7 seen on 5 December 1982 in Laguna Ichucota in the Cordilleran zone, 4300 m, c. 50 km N of the city of La Paz. The following species (number of individuals in parentheses) were also observed at Laguna Ichucota: Olivaceous Cormorant *Phalacrocorax brasilianus* (1); Andean Goose *Chloephaga melanoptera* (20); Speckled Teal *Anas flavirostris* (20); Crested Duck *Anas specularioides* (3); Giant Coot *Fulica gigantea* and breeding Andean Gull *Larus serranus*.

CATTLE EGRET *Bubulcus ibis*

Widely distributed in Bolivia. One seen on 22 August 1988 between Pazña and Machacamarca, c. 3700 m, Province Cercado, was a first record for Oruro Dpt.

ROSEATE SPOONBILL *Platalea ajaja*

A first departmental and altitudinal record is of one seen 3 January 1986 at Laguna Alalay, 2500 m, near Cochabamba City, Cochabamba Dpt. Also recorded from Beni, La Paz, Santa Cruz and Tarija Dpts (Remsen & Traylor 1989).

TURKEY VULTURE *Cathartes aura*

Widely distributed in the Bolivian lowlands, and recently reported from the 'puna' of La Paz Dpt (Serrano & Cabot 1982, Cabot & Serrano 1988). Two were seen on 24 August 1988, 10 km N of Oruro city, Province of Cercado, the first record for Oruro Dpt.

BLACK-CHESTED BUZZARD-EAGLE *Geranoaetus melanoleucus*

Characteristic of the mesothermic valleys of the Bolivian Andes (Cabot & Serrano 1986), one was seen on 22 August 1988 at Pazña, Province of Poopó, a first record for Oruro Dpt. Previously reported from La Paz, Cochabamba, Santa Cruz and Chuquisaca Dpts (Remsen & Traylor 1989).

GREATER YELLOWLEGS *Tringa melanoleuca*

Widely distributed in Bolivia (Remsen & Traylor 1989). Several individuals were observed 7 November 1982 at Villa Alota, 3700 m, the first record in Potosí Dpt. Recently recorded from Oruro Dpt (Schmitt & Schmitt 1987). Numerous individuals were present on 23 August 1987 at Lago Poopó, Oruro Dpt in mixed flocks of Lesser Yellowlegs *Tringa flavipes*, Pectoral Sandpiper *Calidris melanotos* and Two-banded Plover *Charadrius falkandicus*.

BURROWING OWL *Athene cunicularia*

One seen 19 August at Laguna Alalay, 2500 m, near Cochabamba City, was the first record for Cochabamba Dpt. Recently reported for Oruro Dpt (Cabot & Serrano 1988). Additional localities from Oruro Dpt are 8 km S of Oruro City (one specimen), 23 August 1988, and between Oruro and Challapata, c. 3900 m (sight records).

WHITE-VENTED VIOLETEAR *Colibri serrirostris*

Reported from La Paz, Chuquisaca and Santa Cruz Dpts (Bond & Meyer de Schauensee 1943). In the Santa Cruz Dpt is known only from the western montane area. One specimen (EBD 11142A), collected 28

August 1984, at Serranía Caparuch (14°30′S, 61°10′W), in the extreme northwest of Santa Cruz Dpt adjacent to the Brazilian border, constitutes a new locality record.

ELEGANT WOODCREEPER *Xiphorhynchus elegans*

Recently cited as new to Bolivia (Bates *et al.* 1989). A previous record is of one (EBD 11079A) collected 24 August 1986 at Serranía Caparuch, Santa Cruz Dpt.

RUFOUS-BANDED MINER *Gesitta rufipennis*

One seen 28 September 1984 crossing the road between Padilla and Tomina, Province of Tomina, is the first record for Chuquisaca Dpt. Recorded from La Paz, Oruro and Potosí Dpts (Remsen & Traylor 1989).

BUFF-BREASTED EARTHCREEPER *Upucerthia validirostris*

A single specimen (EBD 7639A) was obtained 12 November 1982 at Quetena Chica, 4000 m, Province Sud-Lipez, Potosí Dpt. The habitat was an extensive stony plain with scattered *Lepidophyllum* bushes. This is the first record of the species in Bolivia. Previously known in western Argentina, in high Andean steppes, from Salta and Jujuy to Mendoza, also in Córdoba province (Narosky & Izurieta 1987). Although the species was cited for Bolivia by these last authors, no valid record previously existed.

SHORT-BILLED CANASTERO *Asthenes baeri*

A specimen (EBD 11127A) collected 13 September 1986 at 'Estancia Perforación' (19°30′S, 62°30′W) in the Chaquean region, Province Cordillera, is the first record for Santa Cruz Dpt. Previously reported only from Tarija Dpt (Remsen & Traylor 1989).

SPOT-BILLED GROUND TYRANT *Muscisaxicola maculirostris*

One specimen (EBD 7338A), obtained 24 July 1984, at 10 km SE Sucre, 3800 m, Province Oropesa, is a first record for Chuquisaca Dpt. Also seen 25 July at Yotala, and 26 July 1984 at the airport of Sucre.

PUNA GROUND-TYRANT *Muscisaxicola juninensis*

One sighted 3 April 1985 near Laguna Totoracocha, c. 4000 m, Cordillera Tiraque, Province Arani, is a first record for Dpt Cochabamba. Known from La Paz, Oruro and Potosí Dpts (Remsen & Traylor 1989).

WHITE-CRESTED TYRANNULET *Serpophaga subcristata*

One specimen (EBD 10203A) collected 30 August 1985, 40 km E San Borja, Province Balliviàn, in isolated islands of forest within periodic inundated savanna, is a first record for Beni Dpt. Recorded from Dpts Cochabamba, Santa Cruz, Tarija, Chuquisaca and La Paz (Remsen & Traylor 1989).

MANY-COLOURED RUSH TYRANT *Tachuris rubrigastra*

Previously known only from Lago Poopó, Oruro Dpt (Bond & Meyer de Schauensee 1942) and Lago Titicaca, La Paz Dept (Niethammer 1956). Two specimens (EBD 16404A, EBD 16405A) collected at Laguna Alalay in Cochabamba city are a first record for Cochabamba Dpt. An additional record for La Paz Dpt is of one seen October 1981, at a small lake, 4 km SE of La Paz City in Achocalla valley.

BLUE-AND-WHITE SWALLOW *Notiochelidon cyanoleuca*

Widely distributed in Bolivia (Remsen & Traylor 1989). Several individuals seen 28 September 1984 between Padilla and Tomina are a first record for Dpt Chuquisaca.

PUNA YELLOW FINCH *Sicalis lutea*

Reported from La Paz, Oruro and Potosí Dpts (Remsen & Traylor 1989). The record from La Paz Dpt is based on a specimen collected 5–24 October 1941 at Esperanza, 4200 m, by Steinbach. Previously reported from the Ulla-Ulla Reserve, 4400 m, Province Franz Tamayo, Dpt La Paz (Cabot & Serrano 1985). Voucher specimens: EBD 4686A, 16 December 1981; EBD 4414A, 22 May 1982; EBD 4686A, 27 May 1982; EBD 4760A, 21 January 1982; EBD 5521A, 28 September 1982; EBD 5550A, 16 October 1982. One was also seen (no date) near Escoma, 3800 m, Province Camacho, La Paz Dpt.

In Ulla-Ulla Reserve, *S. lutea* is fairly common, attaining major densities along the banks of rivers. On flat open ground, it does not congregate in large flocks as does the Bright-rumped Yellow Finch *Sicalis uropygialis* at the Ulla-Ulla Reserve.

THICK-BILLED SISKIN *Carduelis crassirostris*

Known from Potosí (Bond & Meyer de Schauensee 1942) and Oruro Dpts (Fjeldså 1987). A single male, obtained from a flock of 5 individuals in a small *Polylepis* wood, 18 August 1988, at c. 70 m NW of Cochabamba city is the first record for Dpt Cochabamba.

Acknowledgements

I wish to express my appreciation to the following individuals who provided much assistance and who extended many courtesies as well as facilities in Bolivia; Dr Ovidio Suarez and Dr Armando Cardozo of the National Academy of Sciences of Bolivia; Prof Gastòn Bejarano; Lic Mirtha Cadima, Lic Mabel Maldonado, Prof Claudio Barra of University Mayor de San Simòn de Cochabamba and the personnel of the Corporaciòn para el Desarrollo de Santa Cruz. Also to Prof Charles Fugler for English translation and Prof J. V. Remsen and Dr J. Fjeldså for corrections in the draft manuscript.

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Notes on Philippine Birds, 16. First records of the Red-tailed Tropicbird *Phaethon rubricauda* and Merlin *Falco columbarius* from the Philippines

by Robert S. Kennedy

Received 5 December 1989

Over the past 15 years, with increased field activity in the Philippines and with the scouring of museums in preparation for the forthcoming *The Birds of the Philippines* (British Ornithologists' Union Check-list No. 12) by E. C. Dickinson, R. S. Kennedy & K. C. Parkes, no fewer than 8 species of birds have been added to the Philippine list. Of these, Javan Pond-Heron *Ardeola speciosa* (Kennedy *et al.* 1984), Gadwall *Anas strepera* (Kennedy & Dickinson 1980) and Baer's Pochard *Aythya baeri* (Glass *et al.* 1979) are based on field observations; Red Phalarope *Phalaropus fulicaria* (Wischusen *et al.* 1984), Dusky Warbler *Phylloscopus fuscatus* (Temme 1976) and Red-breasted Flycatcher *Ficedula parva* (McGowan & Pritchard 1990) are confirmed by recently obtained specimens; and Common Ringed Plover *Charadrius hiaticula* (Gonzales & Kennedy 1989) and Mallard *Anas platyrhynchos* (Kennedy *et al.* in prep.) are from previously unpublished records of specimens in the Philippine National Museum. Here I report on 2 additional species new to the Philippine list.

RED-TAILED TROPICBIRD *Phaethon rubricauda*

During the round-the-world cruise of the research vessel '*Dana*', Jespersen (1933) reportedly sighted one individual sometime on 22 May 1929 in Philippine waters. The noon position of the boat that day was 19°09'N, 120°05'E, c. 40 km off the northwest coast of Luzon, and it apparently reached Aparri on the north coast of Luzon that evening. Although Gould *et al.* (1974) listed this sighting (as well as a Taiwan record by Hachisuka & Udagawa 1951), it was not listed by Delacour & Mayr (1946) or duPont (1971), who either were not aware of the record or did not accept it. These authors would have had good reason for rejecting the record as Jespersen (1933) indicated that his records based on observations were not always "absolutely certain".

Regardless of the validity of Jespersen's record, we now have a positive record of a Red-tailed Tropicbird from the Philippines. In May or June 1988, a ringed (U.S. Fish & Wildlife ring number 544-51684) individual was caught in the open sea off Socorro, Surigao del Norte, Bucas Grande Island (northeast of Mindanao) by Dominico Toren, a fisherman from Doyos, Carrascal, Surigao del Sur on Mindanao. The identification was confirmed by a colour photograph that clearly showed details of the bird, including the red tail feathers, and by the Office of Migratory Bird Management of the U.S. Fish & Wildlife Service. The bird had been ringed on 12 January 1969 on Kate Island, Eniwetok Atoll, Marshall Islands, c. 3800 km distant, by the Smithsonian Institution's Pacific Ocean Biological Survey Program.

The bird is assigned to *Phaethon rubricauda melanorhynchos*, the subspecies known from the Marshall Islands (Dorst & Mougin 1979).

The Red-tailed Tropicbird ranges widely across the tropical and subtropical Pacific (Gould *et al*. 1974) and it is surprising that it has not been confirmed from the Philippines before now. I suspect, however, that this and many other species previously unrecorded from the archipelago are regular visitors to pelagic waters in the Philippines, especially in the Pacific.

MERLIN *Falco columbarius*

The Merlin is not known from Taiwan (Severinghaus & Blackshaw 1976, Yen 1979), nor are there any previous records from the Philippines (duPont 1971). It therefore came as a great surprise to find among the dozen or so specimens of Philippine birds in the Cincinnati Museum of Natural History (CMNH) a female Merlin (CMNH 27766), collected 28 November 1928 by Lieut. Stuart from Calamba, Laguna Province in central Luzon. The label attached to the specimen indicated that it was part of the "Philippine Collection of Lieut. L. R. Wolfe, U.S. Army" and carried the number A247. This is the first record of this species from the Philippines. The species must be accidental to the archipelago and will likely not be recorded again for some time.

The specimen was identified as *F. c. pacificus* by H. C. Oberholser in 1958. I have confirmed this by comparing it with other individuals of this subspecies in the CMNH collection.

This Merlin was part of the Herbert W. Brandt Memorial Collection of 6000 specimens, purchased from Brandt's widow by the University of Cincinnati in 1956 and transferred to the CMNH in 1971. Brandt amassed this collection through personal collecting and by purchasing specimens from collectors all over the world. There are no records in the CMNH that indicate when he received the specimen or from whom he obtained it. Surprisingly, Wolfe (1938) does not mention this important record in his paper on the birds of central Luzon, but aside from this omission, there is no reason to question its validity.

Acknowledgements

I wish to thank P. M. Magsalay for informing me about the Red-tailed Tropicbird, R. B. Clapp for permission to publish the recovery data on the tropicbird, and D. Bystrak for providing its ringing data. Dominico Toren deserves special recognition for contacting the proper authorities in the Philippines and the USA about the ringed tropicbird. A. Buck, E. C. Dickinson and K. C. Parkes kindly read an earlier draft of this paper.

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IN BRIEF

THE GENDER OF THE AVIAN GENUS *BATIS*

Clancey (1989, *Bull. Brit. Orn. Cl.* 109: 122) submits that the gender of the genus *Batis* Boie 1833 (Afrotropical flycatchers of the family Platysteiridae or Muscicapidae) should be treated as of the feminine gender on the basis of consensus of usage over the past century or more. However, it is clear from Article 30(a) of the *International Code of Zoological Nomenclature* (1985, 3rd edition) that a genus of Greek or Latin origin takes "the gender given for that word in the standard Greek or Latin dictionaries". *Batis* is a Greek word of feminine gender (Dowsett 1988, *Tauraco* 11: 143) and it is this fact that determines the gender of the avian genus. It is only for names not of Greek or Latin or modern Indo-European origin that Article 30(d) of the Code indicates acceptance of an implied gender.

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Belgium.

R. J. DOWSETT

13 October 1989

FURTHER ON THE RAPTOR NAME *CIRCAETUS FASCIOLATUS*

The authorship of the binomen of the Afrotropical snake eagle species *Circaetus fasciolatus* has for long been a question of debate among avian taxonomists. In a short note on the matter in *Bull. Brit. Orn. Cl.*, 107(4), 1987: 191–192, I accepted the widely held view that it was first introduced by G. R. Gray in his *Cat. Accipitr. Brit. Mus.*, 1848: 18, where an assumed *nomen nudum*, and decided that its validation in terms of the *International Code* should date from the year 1850 and its author as J. J. Kaup (in Jardine, *Contr. Ornith.*, 3: 72).

Under date 5 March 1990, Herr K. Gröbler, of Leipzig, East Germany (D.D.R.), has kindly drawn my attention to the fact that while Kaup is indeed the true author of the name *C. fasciolatus*, it was actually first described by him in the *Isis von Oken*, 1847 (December), column 954, the original description reading as follows: "In das Subgen. *Spilornis* zähle man die Art *Circaëtus fasciolatus* Kaup. Alle kopffedern zugespitzt; Unterbrust, Bauch, Hosen weiss, mit 3–4 aschgrauen, zum Theil roströthlich angeflogenen breiten Querbinden auf jeder Feder. Ein sehr ausgezeichnete Art von Port Natal. Britisches Museum".

This new information reveals that Gray, in 1848, simply used Kaup's already available name, and that the true describer had had access to the then unique specimen in London well in advance of the publication of the *Cat. Accipitr. Brit. Mus.* The name *C. fasciolatus* will now have its original date and citation adjusted in accord with the above details.

I am indebted to Herr Gröbler for drawing my attention to the existence of the original description of this snake eagle in L. Oken's *Isis*.

Durban Natural Science Museum,
P.O. Box 4085, Durban 4000,
South Africa

P. A. CLANCEY

31 March 1990

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BOOKS RECEIVED

Cooke, F. & Buckley, P. A. (Eds.). 1989. *Avian Genetics. A population and ecological approach*. Pp. 488. Diagrams, etc. Academic Press. 295 × 205 mm.

A reprint in soft covers of this important and well reviewed book, first published in 1987. Its 3 parts are headed Assaying Genetic Variation, Moulding Genetic Variation and Genetic Case Histories (including the Great Tit, House Sparrow, Lesser Snowgoose and Arctic Skua). The final part is an able 'Coda' by P. A. Buckley on "Past and Future Research in Avian Genetics".

Holmes, D. & Nash, S. 1989. *The Birds of Java and Bali*. Pp. 109. 24 colour plates by Stephen Nash. Oxford University Press. Hardback. 135 × 200 mm.

This book is intended to "give the layman an introduction to each bird family" of the area. There is a short paragraph introducing most families, but the 'layman' will find it easier if he already has some prior knowledge of the major families. 112 birds are illustrated in colour and there are text references to over 120 more. The author and illustrator emphasise that the next step for the reader is progress to a field guide, and certainly the more detailed and lifelike illustrations in such works are a great advantage. There is a useful ("not definitive") nominal check-list of 433 species at the end of the book.

Bruggers, R. L. & Elliott, C. C. H. (Eds.). 1990. *Quelia quelia. Africa's Bird Pest*. Pp. 402. Diagrams, etc. 26 coloured plates. Oxford University Press. Hardback. £45. 160 × 240 mm.

An excellently produced book, appropriately dedicated to the late Peter Ward, incorporating a large proportion of the results of work carried out on *Quelia quelia* during the last 20 years by many research teams, of which the 26 authors (of 9 nationalities) are a relatively small proportion of those who have been involved. Subjects included are quelea ecology and management, distribution, population, migrations, breeding, monitoring, marking and control. The authors are all experts in their field, including the 2 editors, who contribute several chapters. Their final conclusion is that any concentration can be eliminated, but that the pest problem is unsolved and the most cost effective strategies need yet to be decided. These probably include educating the farmers themselves, an area so far neglected, and further investigation of quelea as a food resource. A valuable review.

Hume, R. 1990. *Birds by Character*. Pp. 176. Illustrated by Ian Wallace, Darren Rees, John Busby and Peter Partington. Distribution maps. Papermac (Macmillan). £12.95 hardback, £7.99 softback. 110 × 210 mm.

To give the 'jizz' attributes of birds as a field guide for identification is a new conception. Jizz is recognisable. The brief text for each of the breeding, wintering and passage species and "most regular rarities" of Britain and the rest of Europe is composed to provide evocative descriptions of appearance ("tiny, irritable, cocky'—Wren) and behaviour ("hysterically noisy"—Redshank). The many sketches, in colour (for basic plumages and field marks) or monochrome, present several typical and characteristic poses and shapes for each species. That everyone will agree with all the rhetoric's adjectives is naturally open to doubt, but fun has clearly been had in the writing, as it is in the reading. Used in conjunction with standard field guides (recommended for each species) this must be a very helpful (and enjoyable) book.

Norton, J., Stuart, S. & Johnson, T. (Compilers). 1990, 2nd edition. *World Checklist of Threatened Birds*. Pp. 274. Nature Conservancy Council, UK. Soft covers. £20. 295 × 210 mm.

This edition is published by the NCC in its capacity as UK CITES Scientific Authority for Animals. The first edition was published in 1986. Some 2200 species, about one quarter of the world's birds, are listed taxonomically, different columns listing the categories of status in the IUCN Red List, exploitation and references. Below the scientific name is given the English name, breeding and non-breeding range and vagrancy. Still an invaluable source of reference.

Bergier, P. & Bergier, F. 1989. *A Birdwatchers' Guide to Morocco*. Pp. 72. Illustrated by M. Langman. Many maps. Prion Ltd. Soft covers. £8.75. 240 × 165 mm.

An informed guide on how to travel to the better birdwatching sites in an invigorating country of wild and diverse habitats, many only as yet becoming gradually spoiled. A full species list is included in this book, which should prove very useful to the independent individual travelling by private car or public transport, though the former is needed for quite a proportion of the sites described, the description including accommodation available and the birds likely to be seen. Much useful travel guidance and other advice is given throughout, though there is little warning about areas that suddenly become prohibited.

Bignal, E. & Curtis, D. J. (Eds.). 1989. *Choughs and Land-use in Europe*. Pp. 112. Diagrams, etc. Scottish Chough Study Group, Quinhill, Clachan, Tarbert, Argyll, PA29 6XN, UK. Soft covers. £10 post free. 295 × 205 mm.

Proceedings of an International Workshop on the Conservation of the Chough *Pyrrhocorax pyrrhocorax* in the EC, 11–14 November 1988 in Pembrokeshire, Wales. The Chough's distribution and monitoring in the British Isles is discussed, as well as that in Brittany, Portugal, Andalucia and Spain. Research studies cover food, habitat, roosting and human activity. The Conservation and Land Management section covers experiments in sheep grazing, feeding biotopes in Portugal and other aspects. Recommendations of the meetings are presented in 9 languages, including Irish and Scottish Gaelic and Basque. "It is hoped that positive steps will be taken to care for the environments in which these birds live and for the traditional pastoral way of life of the people living in these rural areas."

Zhao Ji, Zheng Guangmei, Wang Huadong & Xu Jialin. 1990. *The Natural History of China*. Pp. 223. Profusely illustrated in colour. Collins. Hardback. £14.95. 290 × 220 mm.

The authors are Director of the Department of Geography, Professor of Vertebrate Zoology, Director of the Institute of Environmental Science and a soil scientist respectively, all at Beijing Normal University. The book is a resplendent collection of photographs of excellent quality and diversity, including a new-born Giant Panda on the palm of a hand, Temminck's Tragopan in full display and the Chinese River Dolphin amongst many other unusual photographs. Birds figure prominently. The text forms a useful, fairly simple introduction to the immense fauna of this vast and ill-known country, where nature reserves have nevertheless burgeoned from 70 in 1980 to a reputed 486 in 1987, covering $2\frac{1}{2}\%$ of the total area of China. There are strict laws and regulations for their management, but how well enforced or enforceable is not clear. Many of the reserves are in remote country and public access is strictly limited, as also sometimes is farming and commerce. Chapters include Forests, Rivers, Lakes and Seacoasts, Mountains, Grasslands and Deserts. The index is non-comprehensive and unreliable.

Erratum. In *Bull. Brit. Orn. Cl.* 110(1), Plate 1 and pp. 52, 53 Baker & Baker mention 2 holotypes of their new *Ploceus* weaver, *P. burnieri*. The ♂ and ♀ "holotype" specimens should have been specified as syntypes and are here so designated.

N. E. & E. M. BAKER

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CONTENTS

Page

CLUB NOTES 61

FJELDSÅ, J. & JENSEN, H. A record of the African Piculet *Sasia africana* from Liberia 62

McGOWAN, R. Y. & MASSA, B. Evidence for breeding of the Lanner Falcon *Falco biarmicus erlangeri* in Spain in the 19th Century . 64

BERRUTI, A. On two indeterminate shearwaters from South African waters 66

LOUETTE, M. The nightjars of Zaire 71

KING, J. R. Polymorphism in *Diglossa humeralis aterrima* in southern Ecuador 77

KING, J. R. & HOLLOWAY, S. J. Notes on the Giant Hummingbird *Patagona gigas* in southern Ecuador 79

ASH, J. S. & GULLICK, T. M. *Serinus flavigula* rediscovered 81

CLANCEY, P. A. The Namibian subspecies of *Cisticola chiniana* (Smith), 1843 83

CLANCEY, P. A. Variation in *Pterodroma brevirostris* (Lesson), 1831 86

ASH, J. S. & GULLICK, T. M. Field observations on the Degodi Lark *Mirafra degodiensis* 90

BEGE, L. A. R. & PAULI, B. T. Two birds new to the Brazilian avifauna 93

HAYES, F. E., GOODMAN, S. M. & LOPEZ, N. E. New or noteworthy bird records from the Matogrosense region of Paraguay 94

CABOT, J. First record of *Upucerthia validirostris* from Bolivia and new Bolivian distributional data 103

KENNEDY, R. S. Notes on Philippine birds, 16. First records of the Red-tailed Tropic bird *Phaethon rubricauda* and Merlin *Falco columbarius* from the Philippines 107

IN BRIEF DOWSETT, R. J. The gender of the avian genus *Batis* 109

CLANCEY, P. A. Further on the raptor name *Circaetus fasciolatus* 110

BOOKS RECEIVED 111

ERRATUM. *Ploceus burnieri*. 112

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Bulletin of the

British Ornithologists' Club

Edited by
Dr J. F. MONK

Volume 110 No. 3 September 1990

FORTHCOMING MEETINGS

Tuesday, 25 September 1990. Dr Michael Rands will speak on **"An Island Paradise? Ornithology and Conservation in the Seychelles".**

Dr Michael Rands was with the Nature Conservancy for some time and is now Project Director of the I.C.B.P.

Those wishing to attend should notify the Hon. Secretary by Tuesday 11 September 1990*. (Booking forms were enclosed in the June publication.)

Tuesday, 23 October 1990. Dr H. Q. P. Crick will speak on **"The Detestable Fly? Tsetse Control and Birds in Africa".**

Dr Crick has lived and worked in both West and Southern Africa. His work in Zimbabwe was on the impact of tsetse fly control. He is presently Head of the Nest Records Unit at the BTO.

Those wishing to attend should notify the Hon. Secretary by Tuesday 9 October 1990*.

Wednesday, 5 December 1990. ***Conversazione*** at the ***International Ornithological Congress*****, at Christchurch, New Zealand** at 7.30 pm. An invitation is extended to all delegates attending the Congress.

Wednesday, 12 December 1990. Dr A. J. Knystautas will again be visiting Britain and will speak on the **"Avifaunal Composition of the U.S.S.R.".**

Those wishing to attend should notify the Honorary Treasurer, S. J. Farnsworth, by Wednesday 28 November 1990*.

Tuesday, 22 January 1991. Bruce Pearson will speak on his expeditions in the **Central African Republic, Sudan, Kenya and Zambia.**

Tuesday, 19 February 1991. Dr Martin Kelsey will speak on the **Wintering of Marsh Warblers.**

Tuesday, 19 March 1991. Dr John Croxall will speak on the **Decline of the Wandering Albatross.**

Meetings are held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6.15 pm for 7 pm. A plan showing Imperial College will be sent to members on request.

*It is usually possible to take acceptances up to the weekend before a meeting, but members are asked to accept by 14 days beforehand as arrangements for the meeting have to be confirmed with Imperial College well in advance.

If you accept and subsequently find you are unable to attend please notify the Hon. Secretary, 1 Uppingham Road, Oakham, Rutland LE15 6JB (tel. 0572 722788) as soon as possible.

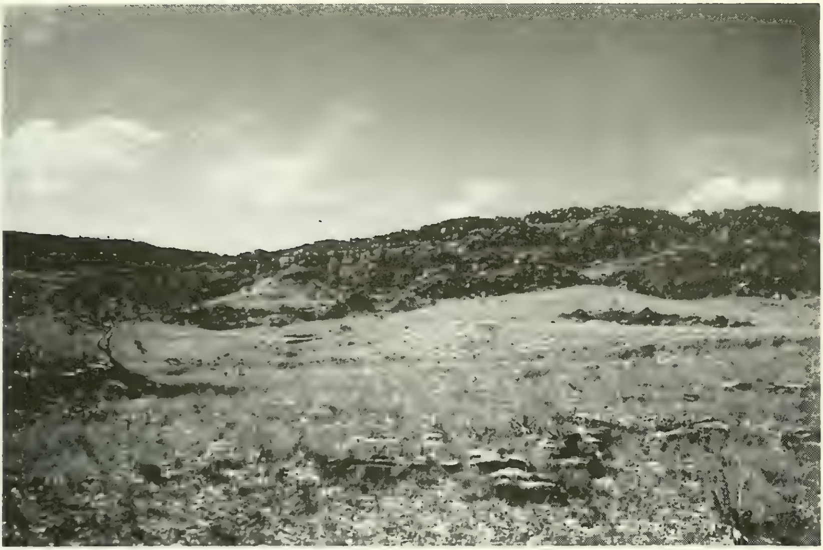

Plate 1. Isolated crag at Serra do Cipó, Minas Gerais, July 1989. M. Pearman

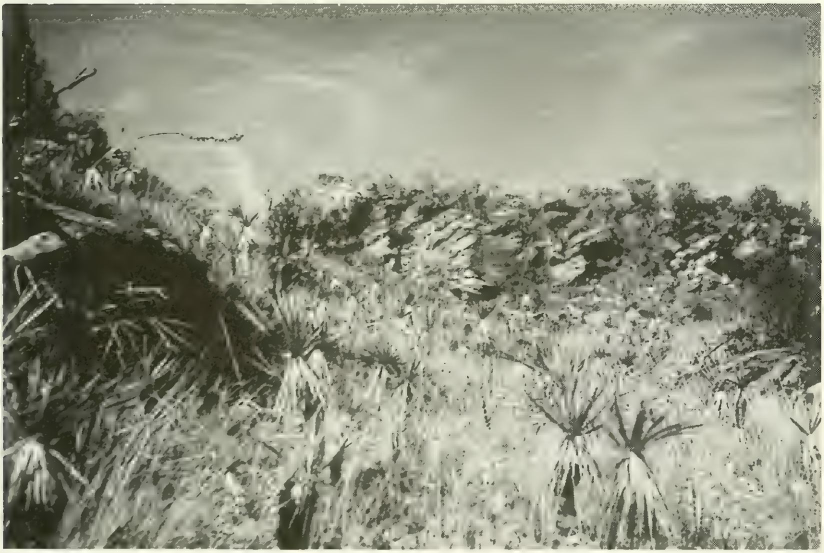

Plate 2. Vegetation on a crag at Serra do Cipó, July 1989. M. Pearman

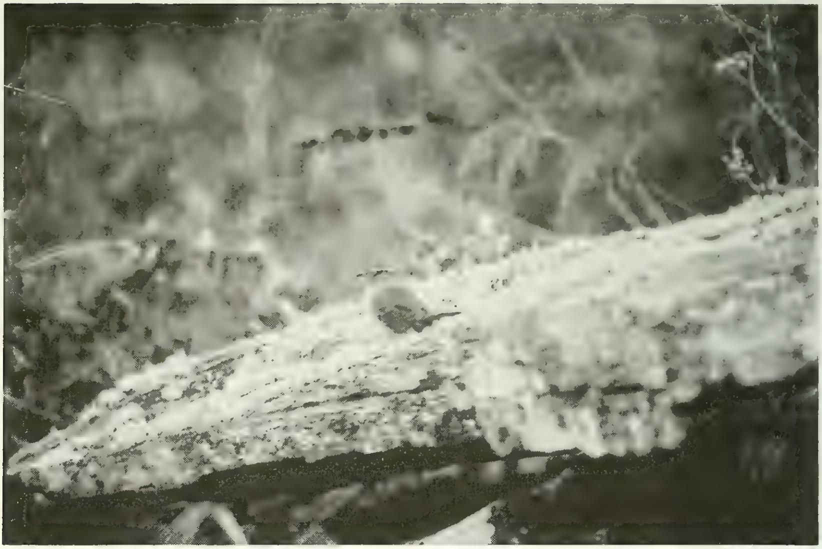

Plate 3. New *Asthenes* sp. Serra do Cipó, July 1989. Note facial and throat pattern and posture.
M. Pearman

Plate 4. New *Asthenes* sp. Serra do Cipó, July 1989. Note tail pattern and pale edges to tertials.
M. Pearman

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 110 No. 3 Published: 20 September 1990

The seven hundred and ninety-seventh meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College on Tuesday, 8 May 1990 at 7 p.m. 18 members and 8 guests attended.

Members attending were: D. Griffin (*in the Chair*), Miss H. Baker, Major N. A. G. H. Beal, P. J. Belman, K. Betton, P. J. Bull, P. Condor, Dr H. P. Q. Crick, Miss V. S. Harley, R. H. Kettle, Revd G. K. McCulloch, C. J. Mead, Mrs A. M. Moore, R. G. Morgan, Mrs M. Muller, Dr R. C. Self, S. A. H. Statham, M. P. Walters.

Guests attending were: Dr R. J. Cowie (*Speaker*), D. G. Brooks, P. Delaloye, Ms K. Hoff, Mrs I. McCulloch, P. J. Moore, Ms L. Muirhead, R. Ranf.

After supper Dr R. J. Cowie spoke on the 'Ecology of Tits in Suburban Habitats'. He has sent the following summary:

Data collected from nestboxes in Cardiff gardens showed that both Blue Tits *Parus caeruleus* and Great Tits *Parus major* managed to rear approximately half the number of young routinely raised by their woodland counterparts. Data on the diet of nestlings, collected using camera nestboxes, showed that parent birds brought a substantial proportion of food for their young from bird-tables. However, in an experiment when the demand on the adults was reduced by removing half the nestlings for a period of time or by providing alternative insect prey, the proportion of artificial food in the diet dropped dramatically, the adults bringing back many more spiders than they had previously. The breeding success of the birds was examined in relation to the amount of artificial food brought to the nest and the density of different species of tree close to each nest, but there were no significant correlations.

A discussion followed on the pros and cons of feeding garden birds during the breeding season.

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 on Tuesday, 29 May 1990 at 6 p.m. 13 Members were present.

The Minutes of the Annual General Meeting held on 9 May 1989 which had been published (*Bull. Brit. Orn. Cl.* 109: 61–62), were approved and were signed by the Chairman.

The Report of the Committee for 1989 was presented. The Accounts for 1989 were offered for acceptance by Mrs Bradley. On the proposal of Mr N. H. F. Stone, seconded by Mr J. H. Elgood, the Report and Accounts were unanimously received and adopted.

The Editor reported that production of the *Bulletin* had continued in a similar way to previous years and that so much material had been submitted for publication that the size of the journal had been increased in 1989. He added that the reproduction of the coloured plate in Volume 110 (1) had been paid for by the authors. The Chairman remarked that the present Editor had held that office for a record number of years.

There having been no additional nominations, the following were declared duly elected:–

Vice-Chairman: Mr D. Griffin (*vice* Mr J. H. Elgood who had wished to stand down).
Editor: Dr J. F. Monk (re-elected) and Dr D. W. Snow elected to succeed him at a date to be decided by the Committee.
Hon. Secretary: Mrs A. M. Moore (re-elected).
Hon. Treasurer: Mr S. J. Farnsworth (*vice* Mrs D. M. Bradley who retired 31 December 1989).
Committee: Cdr M. B. Casement, O.B.E., R.N., Revd T. W. Gladwin and Dr A. Tye (*vice* Mr S. J. Farnsworth and D. Griffin, and Mr N. H. F. Stone who retired by rotation).

The Chairman thanked those who had retired from office and conveyed the very great thanks of the Club to Mrs Bradley for all the work she had done for the Club in her many years of office. He presented her with a painting of Swifts *Apus apus* by Martin Woodcock as a token of thanks from her friends on the Committee.

The meeting closed at 6.10 p.m.

The seven hundred and ninety-eighth meeting of the Club was held on Tuesday, 29 May 1990 in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 7 p.m. 17 members and 12 guests attended.

Members attending were: R. E. F. Peal (*Chairman*), Mrs D. M. Bradley, Cdr. M. B. Casement, r.n., I. C. Collins, J. H. Elgood, S. J. Farnsworth, Revd T. W. Gladwin, D. Griffin, Miss V. S. Harley, Revd G. K. McCulloch, Dr J. F. Monk, Mrs A. M. Moore, Mrs M. Muller, V. J. Sawle, Dr R. C. Self, N. H. F. Stone, Dr. A. Tye.

Guests attending were: J. E. Cooper (*Speaker*), Mrs F. Farnsworth, Mrs J. M. Gladwin, Mrs S. Griffin, Ms K. Hoff, Miss C. Johnston, Mrs I. McCulloch, Mrs D. Monk, P. J. Moore, C. A. Muller, ,Mrs E. Peal, Mrs H. Tye.

After supper the Chairman presented a review of the last 50 years of the Club. His address is published below. Mr J. E. Cooper then spoke on 'Birds and Diseases', a summary of which is given below.

THE CHAIRMAN'S ADDRESS

Fellow Members and Guests

From the foundation of the Club it was customary for the chairman to give an address each year, which was printed afterwards, briefly reviewing important ornithological activities in the Club's past year. Often it included sections on ornithological expeditions and on new books and journal papers, followed by a longer section on an ornithological subject of particular interest to the Chairman. These addresses continued until 1941, when in June Dr Landsborough Thomson gave his review of the usual subjects, followed by "Some Remarks on the Present Status of Ornithology" (*Bull. Brit. Orn. Cl.* 61: 53–59). In the subsequent years of

British Ornithologists' Club
Income and Expenditure Accounts for the year ended 31 December 1989

	1989 £	£	1988 £	£
INCOME				
Subscriptions received				
Members Subscriptions	3,342		3,081	
Subscribers	2,129		2,832	
		5,471		5,913
Donations received		281		46
Investments income				
Stevens Bequest Fund	164		162	
Deposit Interest	865		2,816	
Barrington Trust Fund	48		48	
Charity Account Interest	3,515		—	
		4,592		3,026
Rent received				
Property–'Clovelly', Tring	2,730		2,340	
Less costs	168		(1,225)	
		2,562		1,115
Income Tax recovered				
Deeds of Covenant	204		213	
Other	52		59	
		256		272
Sales of Bulletin Back Numbers		262		1,853
Meetings—Income	2,730		1,926	
—Expenditure	(2,760)		(1,914)	
		(30)		12
		13,394		12,237
EXPENDITURE				
Printing and Publication of the *Bulletin*	7,103		5,871	
Separates	396		334	
	7,499		6,205	
Less—Sales of Separates	(348)		(114)	
—Page Charges	(112)		—	
	7,039		6,091	
Postage of *Bulletin*	1,041		716	
Publication and Distribution Costs of current issue of *Bulletin*	8,080		6,807	
Projector	352		—	
Reprinting Back Issues	—		68	
Printing, Postage and Stationery	757		859	
Telephone	167		115	
Insurance	48		25	
Notices of Meetings	101		107	
Accountancy	460		292	
Miscellaneous Expenses	83		81	
Bank Charges	1		7	
		10,049		(8,361)
Excess of Income over Expenditure		£3,345		£3,876

Notes. There are also fees due in respect of Clovelly which are not expected to be rendered until the matter is settled. The rent of 'Clovelly' has been fixed by the Rent Officer at £2,340 p.a. until 1992.

British Ornithologists' Club
Balance Sheet as at 31 December 1989

	1989 £		1988 £	
General Fund				
Balance at 1 January 1989	29,578		25,702	
Add: Excess of income over expenditure	3,345		3,876	
Balance at 31 December 1989		32,923		29,578
Trust Fund—F. J. Barrington Legacy				
Balance at 1 January 1989	445			445
Add: Profit on sale of 5½% Treasury Stock	122			
Balance at 31 December 1989		577		
Stevens Bequest Fund				
Balance at 1 January 1989	60,606			
Less: Loss on sale of 10¼% Exchequer Stock		38		
Balance at 31 December 1989		60,568		60,606
		£94,068		£90,629
Represented by:—				
Stevens Bequest Fund Investment				
£2,101 10¼% Exchequer Stock 1995 at cost (sold Dec 1989)		—		2,019
Barrington Trust Fund Investment				
£880 5½% Treasury Stock 2008/12 at cost (sold June 1989)		—		445
Charity Fund 111.57 COIF Income shares		577		—
Freehold Property		58,000		58,000
		58,577		60,464
Current assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Bank —Current Account	275		409	
—Post Office Giro	1,292		831	
—Deposit Account	6,115		8,508	
—Nat. Sav. Bank	—		25,796	
—Charity Account	31,491		—	
Sundry Debtors	2,177		67	
	£41,351		£35,612	
Current Liabilities				
Subscriptions received in advance				
—Members	849		732	
—Subscribers	1,429		1,377	
Sundry Creditors	3,582		3,338	
	£5,860		£5,447	
		35,491		30,165
		£94,068		£90,629

These Accounts have been prepared from the Books and records of the Club, and we certify them to be in accordance therewith.

BINGHAM CONYERS & CO., Chartered Accountants
35 Horn Lane, Acton, London W3 9TA
29 May 1990

Approved by the Committee
R. E. F. PEAL *Chairman*

his chairmanship he omitted the annual address, hardly surprisingly, as World War 2 put a stop to almost all ornithological exploration and publications were much reduced, but it is greatly to be regretted that his successors did not resume giving annual addresses when the war ended.

It is not now practicable to give an address to cover the chief ornithological events of the past year but there are other worthwhile matters and I shall speak this evening on progress of the Club in the last 50 years. At this point I must express my gratitude to P. A. D. Hollom and Dr J. F. Monk for information which they have given me about some of the events in this period.

In 1980 I contributed to the *Bulletin* "A short history of the Club and its *Bulletin*" (100: 4–13), but that was predominantly on the early part of the Club's existence, as the more recent period seemed likely to be covered by other contributions to that number.

In 1938 the Club's year began on 1 September, as had been customary; a meeting was held every month from October to June but the meeting in March each year was, as was usual, combined with the Annual Dinner of the British Ornithologists' Union, a meal of 6 courses held at the Rembrandt Hotel, the company in evening dress, presided over by the Union President. After dinner they proceeded to the Royal Geographical Society for a programme of films and slides, at which the Club Chairman presided. As the Union, not the Club, was the essential part of such meetings, I have excluded altogether joint meetings with the Union in counting the numbers attending Club meetings each year.

In 1938, Club meetings were held in a room at the Rembrandt Hotel, conveniently close to the Natural History Museum, where members requiring access to skins were made welcome earlier in the day; the Club's scientific business followed a dinner. The numbers of those attending the 8 meetings held by the Club alone were some 300 members and 80 guests. The U.K. membership was 146 and many or most of the 30–40 members attending meetings did so with considerable regularity; apart from this hard core and a few semi-regulars, the number of members attending was probably very small. The *Bulletin* reported what was exhibited, formally announced or described at meetings, rather than what was actually said in discussion, thus giving an unduly dusty impression of meetings, which could be quite lively: Jourdain was not nicknamed *Pastor pugnax* for nothing! These formal announcements and descriptions (which included taxonomic contributions sent by members who were not present), were essentially of skins and eggs exhibited, new forms described and birds recorded on overseas travels. Members included a number of active field ornithologists but there were still many who had their own collections of skins or eggs or of both. Probably no more than 20 members were employed professionally in ornithology, half of them resident outside Britain. There was still one member, W. L. Sclater, who had attended the meeting in 1892 at which the Club was inaugurated and came to most of the 1938 meetings.

It is easiest to cover the time since then in periods of unequal length. In the wartime years 1939–45 meetings were held from time to time, but in the middle of the day because of the blackout and with small attendances. Membership fell to 123 in 1944, a drop of only 27%, but leniency must have been shown to those unable to pay their subscriptions, as Japanese and those resident in continental Europe retained their membership. There were only 5 issues a year of the *Bulletin* and C. H. B. Grant & C. W. Mackworth-Praed supplied much of the content with taxonomic notes on African birds.

From 1945 to soon after 1960 membership rose gradually reaching 257 in 1961. Meetings were now normally held 9 times a year, though one—sometimes 2—of them were held jointly with the BOU, and from 1946 to 1964 annual attendances were almost up to those of the 1930s, varying between 232 in 1959 and 378 in 1952.

With the *Bulletin*, progress was not so smooth. In 1945–1946 the number of issues was back to 9, the next year it was 7 but with the same total number of pages, which was much below that of the 1930s. In 1947 Capt. C. H. B. Grant, who had been Editor 1935–1940, returned for another term, immediately following 6 years as editor of *Ibis*. It was decided that year, for reasons which were not recorded, to transfer the printing of the *Bulletin* from Taylor & Francis to H. F. & G. Witherby in mid-1948.

As the reasons for the troubled history of the *Bulletin* in the next 5 years are not obvious, I am going into more detail than I would otherwise have done. In 1947–1948 there were 9 issues with rather more pages than pre-war and the Treasurer reported that the cost of its production had greatly increased, partly because of the considerable expense of the many photographs and drawings. In October 1948 Capt. Grant was authorized to spend £20 "on each *Bulletin*". The next month the Committee, having received criticism of the accounts from C. N. Walter, decided to review the financial position at short intervals and noted that they had failed to allow in their budget for the cost of the *Bulletin* preface and index, also £20. The Club year 1948–1949 was extended by 4 months, so that subsequently it would be the same as the calendar year, and there were 12 *Bulletin* numbers published, the total number of pages being midway between that of the 2 previous years. In her Report, the Treasurer, Miss E. P. Leach, who was resigning because of the pressure of other work, reported that a reduction in the cost of the *Bulletin* had been effected. Her successor, elected in January 1950, was C. N. Walter.

In June 1950 he forecast a deficit of £100 that year and it was decided by the Committee to cease publication of the annual Index of Scientific Names and to publish the List of Members only every fifth year; in October it agreed to "Economy in the *Bulletin*". The printing costs per page had risen from 22/– (£1.10) in 1948 to 45/– (£2.25) in 1950. The *Bulletin* that year was the smallest ever, with the sole exception of 1945, and the economies, together with successful promotion of sales of back numbers, had the desired result of producing a financial surplus for the year. On the suggestion of the Chairman, the Committee put to the AGM in April 1951 that the *Bulletin* should be improved by issuing it 3 times a year and to cease publishing the names of those attending meetings. The latter was approved at the AGM, but the former referred back to the Committee, the Treasurer reporting that provision had been made for an extra 17 pages in the *Bulletin* in 1951. When in October that year the Committee next met, it was decided not to reduce the number of *Bulletin* issues to 3 a year and the Editor was asked to increase the size of the 2 numbers still to be published that year, though how he was to do it in the time was not explained and, in the event, 5 fewer pages were published in 1951 than in 1950. It was also decided to increase advertisement of the *Bulletin*. In its report for 1951, the Committee explained that there had been a considerable shortage in communications received that year. At the Committee meeting in January 1952 it was pointed out that the small size of the *Bulletin* would prejudice attempts to increase its circulation and it was decided to increase its size (to 10–12 pages an issue) by returning to the practice of reporting proceedings at meetings more fully and to obtain outside communications. Captain Grant retired as Editor in April 1952 on completion of his 5 year term of office and was ineligible for re-election. His term then as Editor had coincided with bitter controversy over meeting places as well as finance and, in considering his unwillingness to increase readily the size of the *Bulletin*, it should be borne in mind that he had previously been criticized for accepting papers too readily for publication in *Ibis* in the later part of his time as its Editor. The campaigns to increase sales of *Bulletin* back numbers and of current issues succeeded so well that the annual membership subscription could be held until 1962 at the prewar rate of £1-1/– (£1.05).

Dr J. G. Harrison succeeded Captain Grant as Editor in 1952. Faced with the need to increase the size of the *Bulletin* with material of a high standard, he had to solicit papers and his energies produced sufficient suitable content that year for a *Bulletin* almost double the size of 1951; by 1956 he had a 5-month waiting list and was allowed a *Bulletin* of similar size to that of the 1930s. He was specially re-elected in 1957 for a second term of 5 years; he and N. J. P. Wadley, Secretary, both served for 10 years and Walter, as Treasurer, for 12 years. In 1953 the printing and distribution of the *Bulletin* were transferred from Witherbys to Caxton & Holmsdale Press, because Witherbys were unwilling to continue distributing it; the change, however, did result in a saving in cost. In 1960 publication of the Annual Index of Scientific Names in the *Bulletin* was resumed after a gap of 10 years and an Index covering the missing years 1950–1959 was compiled by Miss Frances E. Duckett (now Mrs Warr) and published.

The 1960s saw another Treasurer (P. Tate) elected, who held office for 12 years, and an Editor (J. J. Yealland) who did so for 7 years, but there were 5 Secretaries, pressures of other work forcing a series of changes. The number of members and size of *Bulletin* were maintained but, perhaps due to inflation by then biting harder and to difficulties with restaurants, attendances at meetings plummeted and by 1969 the annual total was down to little more than for a wartime year. In 1965 and 1968 the Committee considered the strategies of the Club; the changes agreed were to move from the Rembrandt Hotel, have buffet suppers at some meetings instead of dinners and to publish the *Bulletin* in alternate months throughout the year. Also, from 1970, meetings were reduced to 6 a year. Suppers were held at the Clarence Hotel, Dover Street in November 1965 and January 1966 but were not considered worth repeating there. Dinners at the Rembrandt (or, if not available, the Reubens) continued until April 1969. Apart from one meeting at the "Phoenix", Palace Street, SW1, they were then held at the Criterion in Piccadilly Circus (or, when unavailable, the Café Royal).

In 1971 the new Chairman was Sir Hugh Elliott; particularly energetic, he found time to attend to a number of exceptional tasks which arose during his term of office and were of considerable importance to the Club. From that year total annual attendances rose, although it was not for 15 years that they were similar to those of the 1950s. The reputation of C. W. Benson, Editor 1969–1974 ensured that there were more than ample papers of a high scientific standard for the *Bulletin*, as was the case with his successors, Sir Hugh Elliott and Dr J. F. Monk. The *Bulletin* has tended to reflect the subjects of particular concern to the Editor, which were wildfowl with Dr Harrison and Africa with Benson; but under Sir Hugh Elliott and Dr Monk it has widened its scope, particularly regarding field ornithology and historical papers. The special issue for the 100th volume of the *Bulletin* in March 1980 contained worldwide zoological reviews, valuable for their references as well as for their textual content, and reminiscences of the Club by several notable members, which continue to make interesting reading.

By 1975 inflation had become serious and a price rise of about 50% at the Café Royal resulted in our last meeting there being in May 1975. After that some meetings, preceded by dinner, were held at Imperial College and some at the "Goat", Stafford Street, Mayfair which was cheaper but could not hold more than 25–30, even with a squeeze. By July 1979 numbers were good enough for all meetings to be held at Imperial College and we have remained there since, with a single exception in 1986, when we tried a restaurant in Holborn. Until we left the Café Royal, the charge for dinner was collected by the restaurant from those present; since then caterers have sent the bill to the Club and officers have had to collect the charge from those who booked to come, which has inevitably meant appreciable extra work.

To meet the ever-increasing costs of publication of the *Bulletin*, it was necessary to increase the members' subscriptions 4 times from 1963 to 1979, but the Club's finances took an immediate turn for the better in 1981, when there was a surplus of income over expenditure of £2,441, against £242 the year before. This improvement arose predominantly from increased membership, more non-member subscriptions to the *Bulletin* and from greater sales of *Bulletin* back numbers, as a result of the despatch of many publicity leaflets as inserts in other journals and by direct mail. In 1986 it was decided to investigate whether reductions in the cost of printing and distributing the *Bulletin* could be obtained. Specifications of what was required were prepared and tenders obtained, as a result of which the change was made to Henry Ling at the beginning of 1988 at an appreciable saving to the Club.

It has always been the practice for the Club to have speakers not likely to be available for local societies and, anyhow from 1971, the aim has been to have one-third speaking on an overseas subject, one-third on a home subject and one-third on a more general subject. From 1978 extra meetings have been held for eminent speakers not otherwise available, in particular those from overseas on brief visits to this country. In the last 2 years it has been the policy of the Committee to hold more meetings, because much increased attendances have shown the demand from members for them.

The move of the Bird Room to Tring some 20 years ago has greatly reduced contact with those working in it; no skins nor eggs have been shown at a meeting for over 10 years but their circulation at meetings had diminished by 1950, because the membership had been changing from people concerned with skins and taxonomy to those primarily interested in fieldwork and, by then, few of those attending were interested in collecting. We still meet in South Kensington—not now in the Rembrandt Hotel but in the no less congenial surroundings of Imperial College.

The period 1978–1989 has been one in which the 3 executive officers, the Editor (Dr J. F. Monk), the Treasurer (Mrs D. M. Bradley) and the Secretary (myself), all held office unchanged. The continuing work of increasing our income, especially in the ways described earlier, and careful economy in *Bulletin* costs, have meant that it has been possible, despite severe inflation, to avoid any rise in the members' subscription since 1979 and to add considerably to both the circulation and the size of the *Bulletin*. As the purpose of the Club is to disseminate knowledge of scientific ornithology, this has been gratifying.

How do we stand now compared with 1938? The membership subscription is up from £1-1/– (£1.05) to £5.50. There was a surplus of income over expenditure in both 1938 and 1989 and the reserve up from £796 to £33,335, a rise of 97% in terms of Retail Prices, the Index of which rose 21.2 times in the period. The List of Members, with addresses, is published again after a long gap and is particularly useful, as no list of BOU members is now published. At the end of 1989, membership was up from 169 (UK 146, overseas 23) in 1938 to 621 (UK 396, overseas 225). *Bulletin* subscribers, around 30 in 1938, had risen to 142, of which all but 18 were overseas. Attendances at meetings in 1989 at 410 were 37 up on 1938, but that disguises the facts that those of members were 49 down at 249 and of guests 76 up at 161. There have been two notable benefactions in the half-century, namely the bequests to the Club of F. J. F. Barrington in 1956 of £1000 and of Herbert Stevens in 1964, subject to trusts which have now expired, of his home at Tring. We are profoundly grateful to them.

In other words, in the last half century the numbers of both members and of non-member subscribers to the *Bulletin* have risen well, but the notable increases in both have come from overseas. Meetings have changed from the coterie of pre-war days, attending often, to somewhat smaller attendances of members who, however, bring almost double the number of guests that used to come. The repute of the *Bulletin* has grown greatly and most members now belong solely because of it. The period has closed with finances in a very satisfactory state.

Appendix. Number of paid-up members at the end of the Club's years 1938–1989

1938	169	**1948**	158	**1958**	244	**1968**	270	**1978**	301	**1988**	578
1939	169	**1949**	172	**1959**	247	**1969**	270	**1979**	309	**1989**	621
1940	153	**1950**	174	**1960**	250	**1970**	263	**1980**	342		
1941	144	**1951**	183	**1961**	257	**1971**	229	**1981**	394		
1942	137	**1952**	191	**1962**	246	**1972**	215	**1982**	399		
1943	130	**1953**	199	**1963**	250	**1973**	233	**1983**	396		
1944	124	**1954**	199	**1964**	243	**1974**	243	**1984**	410		
1945	127	**1955**	196	**1965**	249	**1975**	252	**1985**	459		
1946	133	**1956**	216	**1966**	248	**1976**	274	**1986**	566		
1947	149	**1957**	243	**1967**	247	**1977**	293	**1987**	570		

Note. Where Club records give differing figures, the one judged probably most true has been taken.

Mr J. E. Cooper FRCVS sent the following summary of his talk to the Club on 29 May 1990 on *'Birds and Diseases'* :-

Birds, like other animals, are susceptible to many diseases. In the broadest sense these include injuries, poisoning and developmental abnormalities as well as conditions due to micro-organisms and parasites. It is important to remember that birds may harbour pathogenic organisms without necessarily showing signs of ill-health. For example, a bird may be *infected* with *Salmonella* bacteria (the organisms being present in the intestine and detectable in faecal samples) but not necessarily *diseased*. Under other circumstances a bird may be both infected with *Salmonella* and show clinical signs of salmonellosis.

Relatively little is known of the relevance of disease in free-living birds but there is increasing evidence that micro-organisms and parasites may play a role in threatened populations, especially when this is coupled with other factors such as a high inbreeding coefficient and exposure to pesticides and habitat destruction. These aspects are discussed in detail in ICBP Technical Publication number 10 ("Disease and Threatened Birds"), published in 1989.

"Zoonoses" are defined by the World Health Organization as "Those infections and diseases which are naturally transmitted between vertebrate animals and man". A number of diseases of birds fall into this category: the organisms involved range from viruses and bacteria to helminths (worms) and ticks. Examples of zoonoses of avian origin include salmonellosis, chlamydiosis ("psittacosis"), histoplasmosis and equine encephalitis. Other diseases eg. aspergillosis, are only rarely transmissible from bird to human, but both species are susceptible to the causal organism and birds may help to maintain this in the environment.

Zoonoses can best be tackled by: (a) awareness of the problem; (b) minimising contact between humans and possible sources of infection; (c) practising hygienic precautions when contact is inavoidable; and (d) (in certain cases) prophylactic vaccination.

Much remains to be learned about diseases of birds and their significance. There is a need for much closer collaboration between the veterinary profession, field biologists and amateur ornithologists.

The seven hundred and ninety-ninth meeting of the Club was held in the Senior Common Room, Imperial College, on Tuesday 19 June 1990 at 7 pm. 29 members and 19 guests attended.

Members attending were: R. E. F. Peal (*Chairman*), Dr Margaret Carswell (*Speaker*), M. A. Adcock, Dr J. S. Ash, Miss H. Baker, P. J. Belman, K. Betton, P. Bull, D. R. Calder, Cdr. M. B. Casement, RN, I. C. Collins, S. J. Farnsworth, Revd. T. W. Gladwin, D. Griffin, K. W. Henshall, R. Kettle, Dr P. Lack, Revd. G. K. McCulloch, Dr J. F. Monk, A. G. Moore, Mrs A. M. Moore, R. Morgan, Dr D. E. Pomeroy, V. J. Sawle, Dr R. C. Self, R. E. Sharland, N. J. Skinner, N. H. F. Stone, Dr A. Tye.

Guests attending were: Mrs B. Adcock, R. Allen, Mrs J. W. Ash, Miss E. Carswell, Mrs J. B. Calder, J. Chappel, Mrs P. Chappel, Miss C. Dranzoa, Mrs F. Farnsworth, Mrs S. Griffin, Ms K. Hoff, Mrs B. Holcombe, A. J. Holcombe, Mrs N. Liddell, Mrs I. McCulloch, P. J. Moore, Mrs E. Peal, Miss D. Ridgely, Mrs H. Tye.

After supper Dr Margaret Carswell gave a talk on "The Uganda Atlas of Birds". She described the preparation of the atlas of East African birds and then spoke on the historical background and early workers in ornithology in Uganda. Dr Carswell went on to describe the preparation of the Uganda atlas in particular and how this had shown the changes of distribution of certain species over the years.

The eight hundredth meeting of the Club was celebrated on Tuesday, 10 July 1990 with a dinner in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 7 pm. R. E. F. Peal was in the Chair and the Speaker was the Earl of Cranbrook, DL, PhD. 41 members and 35 guests attended.

Guests of the Club present were: Dr and Mrs D. W. Snow, Mr and Mrs R. P. Howard, Dr J. J. D. Greenwood, I. Prestt, Dr and Mrs C. M. Perrins, Mr and Mrs A. Warr.

Members present were: M. A. Adcock, G. Allport, Miss H. Baker, P. J. Belman, J. Boswall, Mrs D. M. Bradley, P. J. Bull, D. R. Calder, Cdr M. B. Casement, RN, I. D. Collins, P. J. Conder, Dr R. A. F. Cox, E. C. Dickinson, J. H. Elgood, S. J. Farnsworth, A. Gibbs, Revd T. W. Gladwin, D. Griffin, C. Helm, K. W. Henshall, R. Kettle, D. S. Melville, Dr J. F. Monk, Mrs A. M. Moore, R. G. Morgan, Mrs M. Muller, P. J. Oliver, J. G. Parker, R. C. Price, A. J. Randall, Dr R. C. Self, R. Scott, N. H. F. Stone, K. V. Thompson, C. E. Wheeler.

Guests present were: Mrs B. Adcock, Mrs S. Allport, J. Aitcheson, Mrs G. Bonham, Mrs P. Boswall, Mr R. Boswall, Dr J. D. Bradley, D. Brooks, Mrs W. Brooks, Mrs J. Calder, Mrs F. Farnsworth, A. Gammell, Mrs J. M. Gladwin, D. Gordon, Mrs S. Griffin, Ms B. Hammond, Dr D. Hill, Ms K. Hoff, Dr D. Milne, Mrs D. Monk, P. J. Moore, C. A. Muller, Dr R. O. Oades, Mrs E. Peal, Dr M. Petch, Dr M. Pienkowski, R. Ranft, Mrs A. Scott, Mrs S. Stone, D. A. Stroud.

The Loyal Toast was followed by a toast, proposed by the Chairman, to the memory of Frederick James Fitzmaurice Barrington and Herbert Stevens—Benefactors of the Club.

The Chairman spoke of two previous century meetings. In its 97 years of existence the Club has usually held nine meetings a year. Consequently the last century meeting, the 700th, had been held in 1977 when the subject was African Ornithology with Professor J. H. Elgood in the Chair. On the occasion of the 100th meeting of the Club in 1903 following an address by the Chairman, P. L. Sclater, on Current Ornithology, 9 members exhibited skins of 32 taxa and they described 3 new genera, 17 new species and 12 new subspecies.

The Chairman said that the Club continues to be concerned with taxonomy and nomenclature, although at present English names are causing controversy, and he told a cautionary tale of the confusion which can arise even when scientific names are used.

He introduced the speaker, the Earl of Cranbrook, Chairman of the Environmental Sub-Committee of the House of Lords on European Communities. Lord Cranbrook's address was entitled "Development of Habitat and Species Protection in the European Community". An abstract will be published in the December *Bulletin*.

The eight hundred and first meeting of the Club took place on Tuesday, 24 July 1990 in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 7 pm. 19 Members and 10 Guests attended.

Members present were: R. E. F. Peal (*Chairman*), M. A. Adcock, Miss H. Baker, P. J. Belman, Mrs D. M. Bradley, Cdr M. B. Casement, RN, I. D. Collins, P. J. Conder, S. J. Farnsworth, D. Fisher, A. Gibbs, Revd T. W. Gladwin, D. Griffin, R. Kettle, Mrs A. M. Moore, R. Morgan, A. J. Randall, Dr R. C. Self, V. Sawle.

Guests present were: Dr D. Peakall (*Speaker*), Mrs B. Adcock, Miss S. Adcock, D. Brooks, A. McCord, Dr J. Bradley, Mrs F. Farnsworth, Mrs J. M. Gladwin, P. J. Moore, Ms K. Hoff.

After supper Dr David Peakall gave the address "Peregrines and D.D.T.—A Toxicological Detective Story". He described how the early work showing evidence of a decline in the population of the Peregrine in Britain had been demonstrated to be linked to the thinning of the eggshell, an effect which had been subsequently found to be almost worldwide. Further studies correlated this with the pesticide residue in the environment and experiments with captive populations in Canada and the States revealed that the absorption of D.D.E. caused a deficiency of calcium metabolism in this species.

The Scarlet Ibis *Eudocimus ruber* in southeastern Brazil

by L. O. Marcondes-Machado and E. L. A. Monteiro Filho

Received 25 October 1989

The original distribution of the Scarlet Ibis *Eudocimus ruber* ranged from northern South America (Ecuador, Colombia, Venezuela, the Guianas, Surinam and occasionally Trinidad), in the mangroves along the Brazilian coast south to the State of Santa Catarina (c. 28°S) (Sick 1984). Currently, however, the Scarlet Ibis is considered to be restricted to only the northern South American Atlantic coast (Pinto 1978, Sick 1984), apart from 3 specimens recorded from Paranaguá Bay (c. 25°29′S) (Paraná State) by P. Scherer in 1977 (Teixeira & Best 1981) and occasional occurrences recorded by local people in 1986 in the estuarine system of Santos Bay (São Paulo State) (Bokermann & Guix 1986).

Scarlet Ibis usually inhabit mangroves on coastlines (ffrench & Haverschmidt 1970, Spaans 1982, Sick 1984), but Zahl (1950) studied one population on a river bank in Venezuela, where they may feed and nest in association with other bird species away from mangroves.

The aim of this paper is to provide more details on the rediscovery of the Scarlet Ibis in southeastern Brazil and to emphasize the possible danger to which this population is exposed by local industry's huge pollution discharge, first reported by Marcondes-Machado & Monteiro Filho (1989) in order to alert the authorities involved.

Study area

Scarlet Ibis were observed in the inland area of the Santos Bay estuarine system (Fig. 1) at the confluence of the Onças and Quilombo rivers (23°53′S, 46°21′W). The site is bounded to the north and northwest by factories of the industrial complex of Cubatão (COSIPA, Ultrafértil), to the northeast and east by the Vale do Quilombo and Serra do Mar, to the south by a small chain of hills up to 300 m elevation, and to the west by the waterway (Santos Channel).

The climate here is humid tropical (Santos 1965), characterized as warm and rainy without a true dry season. Mangroves, dominated by *Rhizophora mangle*, cover the area and at low tides some banked beaches are exposed.

During a survey of its vertebrate land fauna (with the intention of possibly reintroducing some species), the area has been visited on 2 days each month since May 1988. Observations of Scarlet Ibis were made from

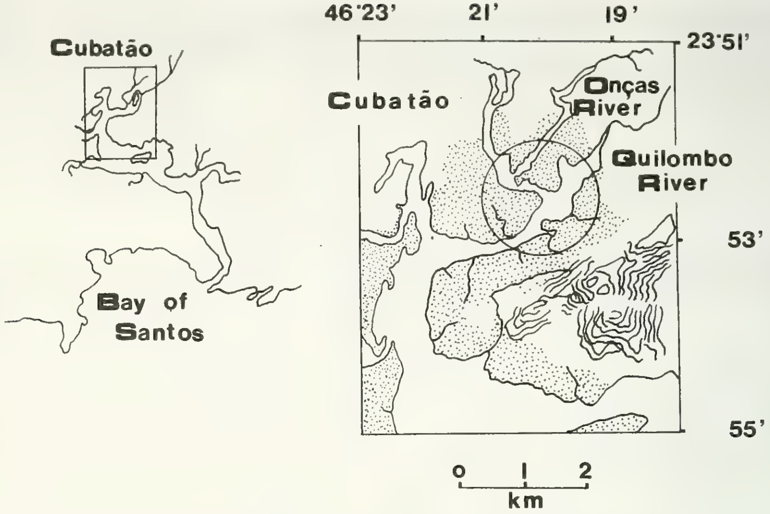

Figure 1. The estuarine system of Santos, SP, Brazil. The circle indicates the area in which feeding, roosting and nest building of the Scarlet Ibis *Eudocimus ruber* took place. The dotted area represents the mangroves.

the shore or from a small boat. We recorded the number of birds, their spacial distribution, and the presence of nests and their characteristics, but avoided close inspection of the nests to minimize disturbance. We also obtained some information from the boatman, who has lived in the region for many years.

Observations

On 23 and 24 January 1989, between 15.30 and 17.00, from the work-site at COSIPA we observed unidentified red birds, presumably Scarlet Ibis, flying between the Santos Channel and Santos Town. The group, initially estimated at 100 individuals, flying mainly in a long line (we did not see any V formations reported by ffrench & Haverschmidt 1970) descended towards the Quilombo river area. Then on 7 March we clearly identified 20 Scarlet Ibis flying towards the Onças river. Later the same day, at low tide, when some mud banks with crabs (*Sesarma* sp. and *Uca* sp.) were exposed, there were 27 Scarlet Ibis feeding among *R. mangle* roots and c. 60 others feeding on the mud, near the water. Snowy Egrets *Egretta thula*, Little Blue Heron *Florida caerulea* and Roseate Spoonbills *Ajaia ajaja* were also seen on the mud banks. As we approached closer, the Scarlet Ibis flew off in groups of 30–40 to other mud banks of the Onças river. At high tide, these birds rested on the mangroves, together with Yellow-Crowned Night-Herons *Nyctanassa violacea*, always along the river margin, the great majority on the middle layer of the trees, only a few elsewhere. Whenever disturbed, the Scarlet Ibis flew away some distance, but never outside the circumscribed area shown in Fig. 1.

On the margin of the Quilombo river, we saw the beginning of a probable Scarlet Ibis nesting colony; there were 2 pairs, with one nest under construction and the other with a sitting female, probably incubating. Both nests were typical (ffrench & Haverschmidt 1970), 4 m above high tide mark and built of wet mangrove twigs in forks in the branches. Even at low tide, the trees were still in water. The nest is round, c. 30 cm in external diameter and c. 15 cm deep externally. We did not examine the interior of the nests in order to avoid disturbance. The nests were well sited against both land and water predators, amongst which we had seen the otter *Lutra longicaudis*.

On the northern South America coastal mangroves, breeding occurs after the rainy season (ffrench & Haverschmidt 1970, Sick 1984), while on the inland rivers of Venezuela, Scarlet Ibis breed in the rainy season (Zahl 1950). However, in the estuarine system of Santos any relationship between breeding season and rainfall needs longterm observation, because there is no true dry season.

Since Scarlet Ibis have been seen by our boatman, Pedro Godoy Filho, in this region for c. 18 months and are now found to be constructing nests, their presence is likely to be permanent, not opportunistic as suggested by Bokermann & Guix (1986).

Conservation

The reappearance of the Scarlet Ibis in the region of Santos as a breeding bird is important because it may indicate the start of a new colonization of southeastern Brazil by this species, and also by other birds such as the Roseate Spoonbill. However, the successful establishment of new breeding colonies of birds and other animals in this area is at risk from the human population inhabiting adjacent mangroves, and particularly by the destruction of the mangroves for industry and human settlements. Predation of eggs is another factor, but perhaps the greatest threat is from pollution. Tommasi (1985a, b) has reported high levels of mercury and pesticide residues in the water and in the sediments of the Santos Channel, close to the Quilombo river's mouth. These poisons may then enter the food chain of the Scarlet Ibis via crabs, and endanger, at least, the birds chances of reproduction.

Thus, we believe that, in spite of the apparent healthy appearance of this mangrove environment at present, it is essential to monitor the pollution level of the area regularly. Although Vale do Quilombo is a State Reservation, it really needs national recognition.

Acknowledgements

We acknowledge with our best thanks: Agripino Ferraz ("Pipa"), for logistic and field work support; our boatman Pedro Godoy Filho for information, for his skill and for his conscientious support for conservation; Karin D. Kempers, Sérgio F. dos Reis, Jacques Vielliard, Augusto S. Abe and Jussara F. C. Melo for reading the manuscript and making suggestions; Dorath P. Uchôa and Gisela Y. Schimizu, for inviting us to participate in the project "Archaeological, Ecological and historical preservation of the Casqueirinho Island, COSIPA, Cubatão, SP, Brazil" (agreement COSIPA/IPH-USP).

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Rediscovery of the Madagascar Serpent-eagle *Eutriorchis astur*

by B. C. Sheldon & J. W. Duckworth

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The Madagascar Serpent-eagle *Eutriorchis astur* is known only from the rainforests of eastern Madagascar, where it is considered a highly endangered species. Ferguson-Lees *et al.* (in press) give a total of 11 museum specimens, from 7 specific sites in 4 main areas (of which 5 sites in 3 areas still exist: Langrand 1989). These range from Maroantsetra, at 15°S in the Baie d'Antongil, south to the type locality, Ampasimaneva, at 19°24′S, a distance of 440 km. All the specimens were collected between "about 1874" and 1930; apart from 4–5 reports by a forestry official of a bird answering the species' description in the Marojejy Reserve north-west of Andapa (north of Maroantsetra) during 1964–77 (see Collar & Stuart 1985), there had been no conclusive evidence of the species' survival for over 50 years and, on CITES criteria, it could have been considered extinct

With the realization that more rainforest survives in Madagascar than was believed 10 years ago (N. J. Collar), interest in rediscovering this species has been intense. However, its rediscovery has been complicated by the very few, and brief, published descriptions of the species, and its similarity to Henst's Goshawk *Accipiter henstii*. On this latter point, Collar & Stuart (1985) noted one specimen that had originally been labelled *A. henstii*, and one of the 2 recently discovered specimens in the Museum of Comparative Zoology, Harvard (MCZ), was also first identified as *A. henstii* (N. J. Collar).

From August to October 1988, 7 observers surveyed the Marojejy Reserve for birds and mammals. Henst's Goshawk was found to be widespread and regularly seen (1–2 recorded on 22 days at 4 different sites: Safford & Duckworth 1990). Then, on 23 September, at Antsahaberoaka (14°21′S, 49°38′E), an area of typical mid-altitude rainforest at 850–900 m, much further into the reserve than villagers normally penetrate, B.C.S. noticed a large raptor perched below the canopy, and spent about 20 minutes compiling a description before fetching J.W.D. for a further 5 minutes viewing. Several Madagascar Crested Drongos *Dicrurus forficatus* then began mobbing the bird and it flew across a river. Despite much searching, it was not seen again.

Field observations

The following description is a distillation of our independent notes, taken as the bird was watched at ranges of 10–20 m, in good light, at a variety of angles from below, usually largely unobscured, with 10 × binoculars. The descriptions agreed with each other in all features except in the subjective assessment of leg length. Interestingly the probable serpent-eagles reported by the forestry official in Marojejy were described as "relatively fearless" (Collar & Stuart 1985), which could certainly be applied to the bird that we saw.

Structure

A rather large raptor of medium build, probably similar in body size to the Madagascar Buzzard *Buteo brachypterus*, but this was difficult to judge. Head well proportioned, not 'fierce'-looking and very reminiscent of the Crested Serpent-eagle *Spilornis cheela* (with which J.W.D. was already familiar). Weakly developed supra-orbital ridge (weaker than on *B. brachypterus*). Cheeks 'puffy'-looking, being when face-on the broadest part of the head. Loose, 'hairy'-looking feathering around the bill. Rear crown and nape feathers about twice the length of those adjacent, giving an elongated appearance to the head, rather than a crest.

Bill structure striking. Upper mandible large, bulging and heavily curved. Cutting edge straight and without irregularities until dropping sharply to hook at tip. No obvious cere, but possibly some greyish skin between the bill and lores.

Wings short and rounded, barely extending on to the tail at rest, the tips not meeting. Tail long, much longer than on *B. brachypterus*, seemingly square-ended.

Legs robust and rather long (J.W.D.) or of medium length (B.C.S.) with prominent claws; feathering extended to the tibio-tarsal joint. Exposed tarsi showed an unusual knobbly or rough appearance.

Plumage

Upperparts mostly dirty grey-brown; carpal feathering conspicuously paler. Nape to rear crown barred blackish-brown, including the elongated feathers. Similar bars over eyes and on ear-coverts. Some nape and rear crown feathers tipped whitish, without forming either bars or a white occipital patch. Remiges heavily barred on uppersides; 6–7 exposed dark bars on primaries. Greater coverts more narrowly barred. Tail of similar colour to upperparts with 6 well demarcated, evenly spaced broad dark bars, one masked by the wingtips; no light or dark terminal bar; each dark tail-bar narrowly bordered paler. Underparts whitish, thickly barred dark from throat to undertail-coverts, these bars being half to one third of the width of the tail-bars, rather thinner on the undertail-coverts.

Bare parts

Legs dirty yellow, toes possibly brighter. Iris bright yellow. Bill dark greyish-horn.

Behaviour

The bird mainly perched on large branches below the canopy, slowly scanning the ground below. It changed perch every 1–2 minutes, although seemingly oblivious to our presence, moving less than 20 m every time, with easy, fluid flight.

Discussion

At the time neither of us had seen a specimen of *E. astur* so we were unbiased in composing descriptions. Because the bird offered such prolonged, unobscured, close views, B.C.S. in particular was able to recheck each point.

Immature *A. henstii* (like the Northern Goshawk *A. gentilis*) has streaked underparts, rather than the even transverse barring of adult *A. henstii* and *Eutriorchis*. We have studied the *E. astur* type (and only) specimen and the 6 (3 adult, 3 immature) skins of *A. henstii* in the British Museum of Natural History (BMNH), and seen photographs of the 2 specimens in MCZ, and believe that adult *A. henstii* can be ruled out on these points (roughly in order of importance):

1. Lack of irregularities on the upper mandible cutting edge. *A. henstii* has a very prominent 'tooth' here.
2. Dark upperwing, covert and nape-barring; this is absent from *A. henstii*.
3. The elongated crown-feathers, giving a long-headed appearance, which immediately reminded J.W.D. of *S. cheela*. This did not, in fact, resemble the hooded appearance depicted in Sharpe (1875), though in the text Sharpe stresses the similarity between *Eutriorchis* and *Spilornis* in "fullness and form of crest". *A. henstii* has no such elongation.
4. Lack of a prominent supra-orbital ridge, giving a facial character totally dissimilar to that of an *Accipiter*.
5. Pale carpal feathering. This is prominant on the BMNH *E. astur* specimen, but not shown by any of the *A. henstii* specimens.
6. Dark bars on the tail. *A. henstii* tends to have poorly demarcated, broadly U-shaped tail-bars, while the *E. astur* specimen has them parallel-sided, giving more regular bands across the tail. Only one Henst's Goshawk showed any traces of pale margins to these bars which are comparatively prominent on *E. astur*.

7. Tarsal scutellation. *E. astur* has large scales giving a rough appearance to the tarsi; *A. henstii* has much smaller scales giving a smooth appearance.

8. Feather structure around bill. *A. henstii* has limited bristle-like feathering around the bill; it is much more extensive on *E. astur*.

9. Barring on the underparts. This is fine on *A. henstii* but broader on the *E. astur* type. The Marojejy bird closely resembled the type in this respect.

10. The Marojejy bird either lacked or had a very inconspicuous cere; *A. henstii* has a very prominent cere.

The bird seen at Marojejy agreed with the *E. astur* type in all these 10 features separating the 2 species. Many of these differences are absolute, including such gross plumage features as heavily barred upperparts.

A draft of this paper was sent to I. J. Ferguson-Lees, who discussed it over the skins at BMNH with Carl Edelstam and K. H. E. Franklin. Edelstam is in the probably unique position of having examined in detail all the known 11 museum specimens of *Eutriorchis,* and Franklin has painted the plate of this species in Ferguson-Lees *et al.* (in press). All 3 found the combination of the main identification points convincing: "especially the form of the feathering around the bill and the hidden cere, the head shape, the colour and barring of the upperparts, the whitish tips to the rear crown and nape, the rough tarsi, and the lack of any 'tooth' on the upper mandible." They pointed out that "The prominence of the dark barring on the upperparts, taken with the whitish tips to the rear crown and nape but not the wing-coverts indicates a juvenile in somewhat worn plumage, perhaps 8–10 months old if we assume a hatching date of November–January to coincide with the peak breeding season of most Madagascar rainforest birds. The dark banding is more obscure in immature and, particularly, adult plumages. There are very small whitish tips to the rear crown and nape in fresh second plumage, but we think these would hardly be visible under the forest canopy. It should be noted that the type specimen at Tring is an immature largely moulted into second plumage." N. J. Collar, A. Gretton, J. H. Fanshawe and N. K. Krabbe also compared our descriptions with the same specimens that we examined, and independently concluded that they refer without question to *Eutriorchis astur*.

This bird was only 500 m from a camp that was occupied for 18 days, yet despite much observer effort it was seen only once. The lack of further sightings may be indicative of the species' elusiveness, due perhaps to its sub-canopy habits.

This represents the first confirmation of the continuing existence of the Madagascar Serpent-eagle *Eutriorchis astur* since 1930.

Acknowledgements

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Size-variation and post-breeding movement in the Didric Cuckoo *Chrysococcyx caprius* (Boddaert)

by P. A. Clancey

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In the southern Afrotropics the small glossy Didric or Diederik Cuckoo *Chrysococcyx caprius* (Boddaert), 1783: Cape of Good Hope, Cape, is a widespread breeding resident from about early October to mid-April, and is an established brood parasite of a range of medium-sized and mainly granivorous passerines. The austral populations spend the non-breeding season in the continental tropics, where their disposition remains inadequately known. Interestingly, of some 250 birds ringed in southern Africa with SAOS bands, only 2 have been recovered, both from within 10 km of the ringing site (T. B. Oatley).

As ringing has thrown no light on the species' post-breeding movements, I have analysed wing-length data as an alternative means of shedding light on the limits of the migration. Southern birds were shown by Hartert (1921) to be longer-winged than the ostensibly more sedentary populations of forested Upper Guinea. Hartert postulated that male Didric Cuckoos from South Africa were large, with wings 118–121, females 124 and 125, *versus* 108–115 in males and 110–117 mm in females from West Africa. The issue was subsequently studied by W. L. Sclater (1922), Gÿldenstolpe (1924), Friedmann (1930), Bannerman (1922, 1933), and others; but owing to the extensive overlap in wing-length measurements found in most museum samples, Hartert's recognition of a long-winged and highly migratory southern subspecies (*C. c. caprius*) and a smaller northern one (*C. c. chrysochlorus* (Cabanis & Heine), 1862: Sennar, Sudan) has not been followed.

It is of significance that much of the comment on variation in *C. caprius* has not adequately addressed the fact that in southern Africa the species is only known as a summer visitor, and samples from further north should have been expected to include migrants from the south of the range. Lynes (1925) found that in Darfur, western Sudan, the cuckoos arrived in June and departed in September, during which time only a small proportion actually bred, the others being non-breeders from another region. Bannerman (1933) presents data from correspondents in West Africa from localities north of the Upper Guinea Forest, where the species is present May–August, when it breeds, these savanna breeders being presumed to move south into the equatorial forest belt after nidification. Bannerman's correspondents did not note, as did Lynes in Darfur, the presence of non-breeders alongside breeding birds, which, *prima facie,* suggests southern migrants either do not reach West Africa or are relatively sparse there. In equatorial West Africa, Bates (*per* Bannerman 1933) recorded *C. caprius* as breeding in Cameroon over a protracted period: March–July and December.

From the south of Africa a reasonably adequate panel of specimens has been available (personally measured):— from Cape Province (topotypical) (42), Natal & Zululand (48), Transvaal (48) and Zimbabwe (33), this series confirming that the austral populations have in the case of breeding ♂♂, wings 114–125, and of ♀♀ 114–127. Through the kind co-operation of Dr M. Louette, Musée royal de l'Afrique centrale, Tervuren, wing-length data of a comparable series of Lower Guinea Forest birds have been available, which, after extracting measurements clearly derived from southern African migrants, show that Zaïre breeding populations have the wings in ♂♂ 103–116, and ♀♀ 105–116 mm. Homogeneous samples in the large Tervuren holding of specimens are those of Ubangi (10), Uele (26), Kisangani & Ituri (10), Kunungu & Kwamouth (13) and Lower Zaïre & Kinshasa (20); while samples including southern migrants were from Equateur (18—with 1 ♀ with wing 118 from Yalohele, dated 5 December 1955), Kivu (11, 2 ♀♀ with wings 119 and 120 from Kamituga and Rutshuru, 17 December 1954, and 5–7 December 1933), Kasai (11, 1 ♂ with wing 125 from Msambo, 23 December 1952) and Shaba & Kwango (13, with 1 ♂ with wing 121.5 and 1 ♀ 117 mm from Kasaji, 14 October 1950, and Kiambi 3 May 1931). Of note, is that 3 of the above records of what are seen as southern African breeders, as now defined on the adequate database of nearly 200 specimens from the region, were collected in the Zaïrean localities in December, at the height of the southern breeding season. These are probably birds in pre-basic (first-year) dress, the Didric Cuckoo almost certainly not breeding later in the same year as fledged.

On the basis of the Tervuren series of 141 specimens from Zaïre, only 4.26% correspond unequivocally with those taken in the southern parts of the Afrotropics, which, in view of the species' abundance as a breeder in the south, presupposes that most migrants probably overfly the equatorial forest. Such seems equally true of East Africa, as material personally measured from Kenya and Tanzania revealed a low incidence of individuals with wings long enough to place them unequivocally as southern migrants.

With the populations of the Upper and Lower Guinea forested belt conceded as mainly sedentary, those ranging to breed in the savannas to the immediate north of them are established *short-range migrants*. Arriving to breed from May, they extend well into the vegetated southern aspects of the Sahara, and are presumed to return south to spend the off-season alongside the sedentary tropical breeders resident to the south. Hartert placed material from Aïr, in Niger, as referable to the same population as that occurring elsewhere in West Africa, and, from additional mensural data derived from the literature, it is evident that the migratory status of the northern savanna breeders is not reflected in the wing-length. This is of evolutionary significance when contrasted against the markedly longer wings of the *long-range migrants* of the southern savannas.

Lynes's (1925) observations in Darfur, western Sudan, revealed that both breeding and non-breeding *C. caprius* occurred alongside one another at the one time, the wing-lengths of material from the savannas of the Sudan encompassing both short- and long-winged differentiates, the measurements of the longer winged birds (above 116 mm) falling within the limits determined above for southern African breeders. Sclater (1922) also found, on the basis of the series in the British Museum (Nat. Hist.), that birds with wings as long as 119 mm were present seasonally in Ethiopia. The non-breeding range of the long-winged and long-distance migrants of southern Africa can, therefore, be tentatively defined as the savannas lying immediately south of the Sahara from Ethiopia, the Sudan, Chad and northern Nigeria westwards. Just how far they extend west remains to be determined by further collecting in the future, if this should be possible.

Turning to the northern and equatorial breeding populations, uncertainty persists as to how far northern migrants travel south during the course of their movement after breeding. Specimen evidence now available shows that northern savanna migrants, as distinct from those linked to the equatorial forest belt, reach Angola, Zambia, Malaŵi and Zimbabwe—and perhaps even further south—when they occur alongside the long-winged southern populations while the latter are breeding. This finding rests on direct empirical evidence in that the size variables in juveniles are strictly analogous to those of adults; by using such criteria in association with the condition of birds in juvenile dress, the presence of moult (either active or arrested) when collected and the date of collection, it is possible to pick out north/south migrants in museum samples. In Zambian material, juveniles in faded dress and arrested moult from Northern Province (Kapata, Mweru Marsh, Kasama and Mpika), dated 3 December–11 February, with wings of 104–109.5 mm are clearly northern migrants, as 12 ♂♀ adults of the local breeding population have wings of 115–121.5 (118.4) s.d. 2.15 mm (specimens from Kapata, Kasama, Solwezi, Lusaka, Chilanga and Chimene Stream (17°33′S,27°05′E)). A single adult ♂ from Mumbwa, at 15°00′S,27°01′E, in immaculate fresh dress, dated 25 April 1950, with a wing of 104.5 and tail of 73.5 mm is unquestionably a northern bird on its southern non-breeding grounds or else on passage.

Zimbabwean material studied includes 2 adults which are unequivocal northern migrants:—one is a faded adult ♂ from Tara Farm, Odzi (c. 18°46′S,32°42′E) dated 26 November 1973—a date on which newly arrived breeders are in pristine condition—with a wing of 111 and a tail of 75.5 mm; and the second is from Gwero (Gwelo) taken on 14 December, the wing again 111 and tail of 78 mm. Also significant, is a ♀ in pre-basic (first year) dress from Matsheumhlope, Bulawayo, with a wing of 114 and tail of 82 mm dated 27 October 1977, which differs strikingly in plumage facies from adults arriving at the same time to breed. Young *C. caprius* migrate either before the onset of post-juvenile moult, or during it, when it seems to be temporarily arrested to be completed on the non-breeding grounds. In long-winged southern breeders, juveniles showing no moult may still be present mid-May, as instanced by one from Sentinel Ranch (22°09′S,29°28′E) on the Limpopo R. with a wing of 122 mm taken 13 May.

None of the long series of South African specimens here examined falls unequivocally within the limits set for northern birds, but the latter may extend on occasion to the regions lying to the south of the Limpopo; Sclater (1922) lists a South African-taken ♂ as having a wing of only 107 mm, while other authors have referred to having measured specimens taken in South Africa every bit as small as northern breeding birds. Such unsupported comment is, however, of limited value as the 2 complexes exhibit a measure of overlap between the extremes in wing-length (southern 114, northern 116 mm). Specimens with wings reaching either extreme, or between them, would not be readily assignable without recourse to the use of other parameters and a critical assessment of plumage state, date of collection, etc.

More so than the other 3 Afrotropical *Chrysococcyx* spp., *C. caprius* exhibits extensive individual variation, particularly in the female. Males show much variance in the reddish copper or bronze overlay to the otherwise metallic green mantle and scapulars, which in the case of the long-winged breeders south of the Zambezi is clinal, with the reddish copper overlay declining south/north, with greener or even more bluish birds increasing in incidence to about 35% in Zimbabwe and Zambia. On the other hand, geographically related and taxonomically relevant variation is found in the extent to which the wing-coverts in adults of both sexes are mottled with white, the northern elements showing a marked diminution in the size of the spotting compared with those from the southern aspects of the continent. The white frontal streak in males tends to be broader in the south of the species' range, and the white elliptical spotting to the rectrices, while variable, is on the whole coarser and the individual spots not so closely placed together.

In the Didric Cuckoo we have a situation which is on a par with that presented by the Afrotropical populations of the Great Spotted Cuckoo *Clamator glandarius,* in which southern and northern (African) migrants move in tandem twice a year, resulting in southern breeders of all classes spending the off-season in the northern savannas alongside the northern breeding population. The role is later reversed, when northern breeding birds move south to spend their off-season alongside the southern nesting differentiates (see Clancey 1987). A further instance of dual movements in separate races of single species in the parasitic Cuculidae is presented by the Jacobin Cuckoo *Clamator jacobinus* (Clancey 1960), and may be found to occur in yet other species remaining to be studied in close detail. Such atypical post-breeding movement patterns evidently evolve in species, such as parasitic cuckoos, which take no active part in the rearing of their own offspring.

Hartert's finding of extensive wing-length variation in *C. caprius* has only been resolved in formal taxonomic terms through the availability of a major database in the form of a reasonably adequate panel of southern African breeding specimens, which did not exist when the issue was initially investigated. Following Hartert (1921), other workers published comment on material, most of which was taken to the north of the Zambezi R., and comprised local breeding birds, transients and non-breeding visitors. Fortunately, in so far as this communication is concerned, it was found that among a range of specimen samples from Zaïrean localities preserved in the Tervuren collection were some which were seemingly entirely of local breeding birds. Comparison of the wing-length data of these and of the large southern African material shows convincingly that Hartert's initial conclusions were well-founded. Among the earlier students dealing with the size-variation in *C. caprius*, Friedmann (1930) seems to have come closest to a satisfactory resolution of the issue, but even here the composite nature of the specimen samples to hand and the lack of adequate South African material precluded answering what is in effect a relatively straightforward case obscured by involved migration patterns.

The populations of *C. caprius* are now grouped on the basis of the above findings into 2 conventional subspecies, as follows:

Chrysococcyx caprius caprius (Boddaert)
Cuculus caprius Boddaert, *Tabl. Planch. Enlum.*, 1783, p. 40: Cape of Good Hope, Cape (*ex* Daubenton, *Planch. Enlum.*, pl. 657).

Adults with broad white spotting to the metallic green wing-coverts; frontal white streak in ♂ well-developed. Size large: wings in ♂♂, 116–125 (118.9), ♀♀, 116–125 (120.75) mm—see Table 1; tails of 20 ♂♂, 80–89 (83.4), 20 ♀♀, 78.5–88.5 (84.0) mm. Cape and Natal specimens.

Range. Southern Africa from the Cape, Natal and Zululand, north to southern Angola, Zambia, southern Shaba, Zaïre, Malaŵi, southwestern Tanzania and Mozambique. After breeding (October to March/April) migrates to northern sub-Saharan savannas from Ethiopia, Sudan, Central African Republic and Chad westwards, when occurring alongside breeding *C. c. chrysochlorus*.

Remarks. Specimen evidence suggests migrants largely overfly the Lower Guinea Forest and even the East African savannas.

Chrysococcyx caprius chrysochlorus (Cabanis & Heine)
L. (amprococcyx) chrysochlorus Cabanis & Heine, *Museum Heineanum*, vol. iv, 1862, p. 11: Sennar, Sudan. (Corrected to Senegal by Hartert, *Nov. Zool.*, vol. xxviii, 1921, p. 100, but see 'Remarks').

TABLE 1

The wing-length variable (in mm) in populations of the Didric Cuckoo *Chrysococcyx caprius*

	MALES				**FEMALES**			
Locality	**n**	**range**	**$\bar{x}$**	**sd**	**n**	**range**	**$\bar{x}$**	**sd**
			Southern populations					
* 1. Cape Prov.	32	116–125	118.9	2.80	10	116–125	120.75	3.08
* 2. O.F.S. & Lesotho	4	115.5–125	119.3	—	2	119, 120	—	—
* 3. Natal & S. Mozamb.	32	114–125	119.4	3.02	16	114–127	118.9	3.08
* 4. Transvaal	35	114–124	118.5	2.41	13	116–125	119.5	3.02
* 5. Zimbabwe	14	115–122	117.3	1.92	16	115–122	118.9	2.26
6. Botswana & Namibia	6	115–119	116.8	1.60	3	114–121	117.0	—
			Northern populations (Zaïre)					
* 7. Ubangi	5	105–108	106.0	1.22	5	105–111	108.8	2.48
* 8. Uele (Uelle)	14	103–111	107.8	2.68	12	109–116	112.9	1.97
* 9. Kisangani & Ituri	6	105–116	109.1	3.86	4	107–116	111.25	4.03
10. Kivu	6	107–115	111.5	3.20	3	109–115	112.6	—
*11. (Rwanda & Burundi)	5	106–116	113.2	4.08	4	114–116	114.75	0.95
12. Equateur	10	105–114	109.6	2.87	7	106–113	109.8	2.91
13. Kasai	4	104–110	107.0	2.44	6	107–115	110.0	2.75
*14. Kunungu & Kwamouth	8	104–114	109.0	3.46	5	108–115	111.2	2.77
*15. Lower Zaïre & Kinshasa	10	106–114	110.2	2.52	10	108–113	110.2	1.98
16. Shaba & Kwango	7	107–115	112.0	2.92	4	111–116	114.25	2.21

Statistical analysis of the wing-length in the southern and northern populations of *C. caprius* based on the above asterisked samples*, showing the highly significant nature of the size-difference separating the two population complexes:-

	Southern populations	*Northern populations*
♂♂	$\bar{x}$ 118.63	$\bar{x}$ 109.06
	n 120	n 48

$t = 18.330$, df 166

$P < 0.001$

♀♀	$\bar{x}$ 119.40	$\bar{x}$ 111.52
	n 55	n 40

$t = 13.410$, df 93

$P < 0.001$

Adults compared with the nominate, have smaller white spotting to the metallic green wing-coverts, the ♂ with narrower white frontal streak. In series, show smaller white elliptical spotting to rectrices. Size smaller: wings of 25 ♂♂, 103–116 (107.8), 21 ♀♀, 105–116 (111.6), tails of 16 ♂♀, 73.5–83 (77.9) mm. Zaïrean specimens (populations 7, 8 and 9 in Table 1). C.D. ♂ wing 1.45, ♀ wing 1.51, well above conventional limit of 1·28 for subspecies.

Range. West Africa from Senegal and The Gambia south to Liberia, east south of the Sahara to the Sudan, Ethiopia and Somalia, south in the east to northern Angola, Zaïre and most of Tanzania (except south-west). Equatorial populations apparently largely sedentary, but northern savanna elements leave breeding grounds in September (present from May), ranging south to Angola, southern Shaba, Zaïre, Zambia, Malaŵi, ?northern Mozambique, and Zimbabwe, to occur in small numbers alongside breeding *C. c. caprius*. Some elements of *C. c. chrysochlorus* may range further south than stated to reach South Africa.

Remarks. As small-sized birds breed in the Sudanese savannas, which they later vacate, Hartert's adjustment of the type-locality of Cabanis & Heine's *L. chrysochlorus* from Sennar, Sudan, to Senegal was unnecessary, and the original citation requires to be retained.

In an extended footnote to the description of *C. c. chrysochlorus,* Cabanis & Heine (*loc. cit.*: 11–12) write as follows: "As in the case of the golden cuckoo [=Emerald Cuckoo *Chrysococcyx cupreus*], two races of the Glanzkuckuck [=Didric Cuckoo *Chrysococcyx caprius*] may be adopted, namely a large southern one with a more extended bill and a smaller and shorter-billed northern one, which Sundevall, *loc. cit.* [=*Krit. Framställn.*, p. 47], suggested the existence of by his statement "*Specimina a Sennaaria allata paulo minora sunt.*". In addition to the size differences, which are given in full in the text, most of the southern individuals are characterized by the beautiful cupreous golden hue of all the dark metallic parts of the plumage, which is golden emerald green in the northern form. However, the three white stripes to the middle part and sides of the head are much narrower in *L. cupreus* [=*C. c. caprius*] than in specimens of *L. chrysochlorus* [=*C. c. chrysochlorus*] from Egypt [*sic*!], Abyssinia and Senegambia in the Berlin Museum. In these latter specimens they begin as very broad stripes and nearly merge over the occiput, thus giving the impression of a white forehead with two golden green stripes. However, these last mentioned differences cannot be regarded as constant, and the differences in size will be the most reliable characters for differentiation in regions where the two forms are in contact, and in advance of the collecting of longer series of specimens which may in turn confirm the colour differences described here."

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Comment on the geographical variation of the Malachite Kingfisher *Corythornis cristatus* of the Afrotropics

by P. A. Clancey

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Over the past 30 years the geographical variation exhibited by the Malachite Kingfisher *Corythornis cristatus* (Pallas), 1764, has been discussed in varying degrees of depth by Rand *et al.* (1959), Clancey (1965, 1978) and more recently by Dickerman (1989). Following Rand *et al. C. c. galeritus* (Müller), 1776: Senegal, has been largely accepted and accorded an extensive continental range, the nominate race restricted to the southern aspects of Africa in association with the South West Arid Zone. In his recent re-assessment of the subspecific taxonomy of the species, Dickerman restricts usage of the name *galeritus* to the far western population distributed from Senegal, south to Liberia, the Ivory Coast, and, perhaps, Ghana, placing the birds occurring to the immediate east of it in the nominate subspecies, the type-locality of which is the Cape of Good Hope, Cape. As this new arrangement, arrived at on the series of specimens in the American Museum of Natural History, New York, is at complete variance with that in current use in Africa, as in the *SAOS Checklist* (Clancey 1980), I have re-examined the issue, confirming that nominate *C. cristatus* is indeed confined to Africa south of the Zambezi, its precise range being southern Namibia and Cape Province, east to Natal, the Transvaal and the plateau of Zimbabwe. It does not extend north through the continent to the north of the Lower Guinea Forest. With the restriction of *C. c. galeritus* to the West African range now outlined for it by Dickerman and confirmation that *C. c. cristatus* is a Southern African Subregion form, it will be necessary to resuscitate the name *Alcedo cyanostigma* Rüppell, *Neue Wirbelth.*, Vög., 1837, p. 70, pl. 24, fig. 2: Abyssinia = L. Abiata, Ethiopia, for the populations of western and central Africa to the east of the "Dahomey Gap", east to the Sudan, Ethiopia and western Somalia, south to Angola and Zambia north of *C. c. longirostris* Roberts, 1932: Kabulabula, Chobe R., northern Botswana (= *robertsi* Peters 1945—for comment on the validity of which see Clancey 1978)—eastern lowland Zimbabwe, Mozambique and coastal Natal.

Prior to the adoption by the scientific community of Pallas's names proposed in Vroeg's *Catalogue Raisonné Coll. Oiseaux,* Adumbratiunculae, No. 55, 1764, Rüppell's *A. cyanostigma* was accorded wide-usage for the African Malachite Kingfisher in the standard literature of the time. This being so, *cyanostigma* cannot be considered to be a forgotten name or *nomen oblitum.*

Currently, 3 races of the present kingfisher are generally admitted, namely, *C. c. cristatus*, *C. c. galeritus* and *C. c. longirostris* (= *robertsi*), to which must be added *C. c. cyanostigma* with a range as given above. As the names *C. c. cyanostigma* and *C. c. stuartkeithi* Dickerman 1989: Anseba R., northern Ethiopia, are both available for the Ethiopian representation, it will be necessary to determine if the latter is in fact separable. Limited material examined from critical localities in Ethiopia (including Eritrea) and Sudan does not indicate any regional divergence in ventral colouration which would justify further recognition of a localized arid country subspecies from northern Ethiopia and the Blue Nile drainage in general.

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First records of the White-tailed Nightjar *Caprimulgus cayennensis* in Ecuador

by C. G. Schmitt & Donna C. Schmitt

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The White-tailed Nightjar *Caprimulgus cayennensis* is known from Costa Rica to Colombia and Venezuela, northern Brazil, the Lesser Antilles, Aruba to Bonaire, Trinidad, and Tobago (Meyer de Schauensee 1970, Meyer de Schauensee & Phelps 1978). Here we report the first specimen and our additional sight records of *C. cayennensis* from Ecuador. There are apparently no previous records from Ecuador.

On 17 October 1983, C.G.S. collected a male *C. cayennensis* (LSUMZ 112511) at 6 km (by road) north of Salinas, Rio Palacara Valley, 1425 m, (0°30′N, 78°08′W), Prov. Imbabura; testes 12 × 7 mm, Cream coloured; no fat; wt. 40.0 g; bill Dusky Brown; tarsi and toes Flesh Colour (capitalized colour names from Smithe 1975, 1981); total length 233 m; no body moult. The stomach contained 5 whole beetles (Coleoptera) 10–15 mm in length.

We also saw and heard other *C. cayennensis* at this site on 19 and 20 October 1983, when individuals were observed foraging at dusk 3–7 m above the ground during continuous flight. The specimen collected and 2 other individuals were observed foraging and then flying to the ground. Our records in northwestern Ecuador represent a range extension of c. 275 km south of known locality records in southern Colombia described by Hilty & Brown (1986).

Hilty & Brown (1986) noted that *C. cayennensis* was common on eroded, dry hillsides with scattered bushes and thickets between Cali and the Pichindé Valley in southwestern Colombia. Our observations of *C. cayennensis* were in xeromorphic scrubland with relatively sparse groundcover in the Rio Palacara Valley near its junction with the larger Rio Mira. This portion of the Rio Palacara Valley has deeply cut and severely eroded arroyos. The valley slopes are steep and rocky, with much bare ground. The vegetation on the slopes and drier parts of the floodplain included *Prosopis* sp., *Acacia* spp., *Opuntia* spp., species of columnar cacti, and numerous species of unidentified shrubs and herbaceous plants. The floodplain of the Rio Palacara Valley in this area has scattered agricultural clearings, and near these clearings, *Prosopis* spp. and *Acacia* spp. form fairly dense stands along irrigation ditches. There are also bands of varying widths of riparian vegetation that parallel the Rio Palacara and adjacent irrigation drainage ditches.

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Notes on the iris colour in females of two manakins (Pipridae)

by Henri Ouellet

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Plumage peculiarities whereby adult female manakins exhibit 'male-like' plumages have been summarized by Graves (1981) who also pointed out that "sex determination on the basis of iris colouration in female or immature plumaged manakin is not reliable". In reviewing recent publications on Neotropical birds in search of descriptions of the iris colour of females or immature manakins occurring in northeastern South America it became evident that some of the information available in the literature, either in the text or from colour illustrations, can be incomplete or even contradictory (Hilty & Brown 1986, Meyer de Schauensee & Phelps 1978, Ridgely 1976). On the other hand, few other authors have reported on the iris colouration of female manakins. This note describes the iris colour of females of the Crimson-hooded Manakin *Pipra aureola* and of the Golden-headed Manakin *P. erythrocephala*. The data were recorded in Venezuela and Guyane française on live birds later meticulously sexed during dissection (Table 1) and from the examination of a number of specimens in various collections.

The iris colour of the 4 females in Table 1 varies in hues of white, but is basically 'white'. Similar findings were made in 6 females in the Carnegie Museum, where the label data indicate that the basic 'white' of the iris ranges through "pure white", "rose-white", "green white", and "bright yellow white" to "leaden white". The white iris of 7 males varies also in a similar manner and is "white". These findings emphasize that the iris colour of female *Pipra aureola* is at times inaccurately depicted in

TABLE 1

Summary of skull condition and iris colour of fresh specimens of *Pipra aureola* and *P. erythrocephala*

Sex	Skull condition	Locality	Date	Iris colour
		Pipra aureola		
f[1]	ossified	Ven., El Furrial	22 Mar 1988	white
f[1]	partly ossified	Ven., El Furrial	22 Mar 1988	pinkish white
f	ossified	G.fr., Sinnamary	13 Mar 1989	cream white
f	ossified	G.fr., Sinnamary	20 Mar 1989	lilac white
		Pipra erythrocephala		
f	ossified	Ven., El Furrial	29 Mar 1988	greyish white
f	ossified	G.fr., Sinnamary	12 Mar 1989	dark brown
f	non-ossified	G.fr., Sinnamary	14 Mar 1989	dark brown

[1] traces of bright plumage as *per* Graves (1981).

G.fr. = Guyane française.

Ven. = Venezuela, Monagas.

illustrations and that this can be misleading for future taxonomic purposes.

In *Pipra erythrocephala* the situation appears to be more complex, because 2 females with ossified skulls had differently coloured irides—greyish white and dark brown—whereas the irides were dark brown in a female with a non-ossified skull (Table 1). At present it is not known whether this is the result of geographic variation nor what is the extent of individual variation in iris colour of female *P. erythrocephala* and its relation to age. Whether the iris colour of mature female *P. erythrocephala* is white or dark brown is unknown, nor whether it varies seasonally or during the breeding cycle itself. Until some of these questions are given an answer, ornithologists using live birds with a dull plumage resembling that of females cannot be certain either of the sex or age of the birds they are studying.

Acknowledgements

I wish to thank Drs D. Scott Wood and K. C. Parkes of the Carnegie Museum for authorization to study specimens in their care. I extend also my sincere thanks to colleagues in Venezuela (J. R. Rodriguez S and Gedio Marin) for assistance in the field and to Léon Sanite in Guyane française for his constant support.

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First description of the nest of the Golden-breasted Puffleg *Eriocnemis mosquera*

by Alan Tye and Hilary Tye

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The Golden-breasted Puffleg *Eriocnemis mosquera* is restricted to montane regions of Colombia and Ecuador, occurring chiefly between 2600 and 3300 m altitude, with records as low as 1200 m and up to 3600 m (Hilty & Brown 1986). Its habitat includes stunted and elfin woodland and shrubby areas near the treeline (Hilty & Brown 1986). Its nest appears not to have been described previously (Hilty & Brown 1986, Schuchmann 1988, C. Hinkelmann).

We report here a nest of this species found at 3700 m altitude in Puracé National Park in the Central Cordillera of the Andes, southern Colombia (2°19′N, 76°22′W). The nest was found on 28 November 1988, on the slopes of Volcán Puracé, in a region of low temperatures and high rainfall. This observation also represents the greatest altitude at which the species has ever been recorded.

The nest had been built on the end of a slender branch, hanging down from a rock overhang. It was situated c. 2 m above a mountain stream and was protected from approach by the overhang on one side and the stream and a bog on the other. The overhang may also have protected the nest at least partly from rain.

The nest was a cup, constructed from creamy-coloured plant down on a base of moss and sticks. The rim of the cup was doughnut-shaped and had an external diameter of c. 10 cm. The internal depth was c. 5 cm. The nest's situation prevented close approach but an adult attended it, sitting for long periods and thereby suggesting that the nest contained eggs.

With the exception of *E. glaucopoides,* which is found in Bolivia and Argentina, the genus *Eriocnemis* is restricted to the Andes of Colombia, Ecuador and Peru. The only previous description of the nest of any member of the genus is that by Schuchmann (1988) for the Sapphire-vented Puffleg *E. luciani*. The nests of both species are of a form common in the family Trochilidae (Snow 1985, Schuchmann 1988).

The position of the nest described above, under an overhang, may be important for protection from rain at such high altitudes and from low temperatures: a nest with 2 eggs of the Shining Sunbeam *Aglaeactis cupripennis* found on the same day, c. 1 km away at c. 3800 m (above the treeline) was similarly placed, on the end of a hanging root, under a peat overhang. The nest of *E. luciani* described by Schuchmann (1988) was at 3500 m and was also protected from above, by thick layers of grass. Since such protection provides a warmer microhabitat (Calder 1973, 1974), in addition to its shelter from rain, it may be general for hummingbirds living at high altitudes.

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Intraspecific variation in the natal pterylosis of the Ochre-bellied Flycatcher *Myionectes oleagneus* (Tyrannidae)

by Charles T. Collins

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The nestlings of the Ochre-bellied Flycatcher *Myionectes (Pipromorpha) oleagneus* have been described as having "sparse but long grey natal downs" (Skutch 1960: 568). This paper provides detailed data on the natal pterylosis of this Neotropical tyrant flycatcher.

A total of 8 specimens from 3 nests was collected c. 5 miles north of the town of Arima in Arima Valley, St George Co., Trinidad. Three young collected from a nest (A) on 20 June 1963 had pin feathers just beginning to erupt through the skin (Stage B—Wetherbee 1957: 356), while 3 nestlings collected from a nest (B) 17–19 June 1963 and 2 from a third nest (C) on 22 July 1964 were all newly hatched (Stage A—Wetherbee 1957). All specimens were examined under a dissecting microscope and the number and distribution of natal downs (neossoptiles) recorded (Table 1). The terminology for neossoptile tracts and regions within tracts follows Wetherbee (1957).

All 8 specimens had neossoptiles present in 6 of the 7 tracts and regions bearing downs (coronal and occipital regions of the capital tract, spinal, scapular and femoral tracts and greater secondary coverts). Only 3 specimens, however, all from nest A, had neossoptiles present in the orbital region of the capital tract (Table 1).

The total number of neossoptiles present in single specimens ranged from 34 to 62. On the other hand, the variation among 6 of the 8 specimens was only 48–57 total neossoptiles. Choosing a single pattern and number of neossoptiles to characterize this species is difficult due to the observed degree of intraspecific variation. One approach is to utilize the average number (rounded to the nearest whole number) of neossoptiles present in

TABLE 1
Distribution of neossoptiles (on left/right sides) in 8 young of the Ochre-bellied Flycatcher *Myionectes oleagneus*

Tract/Region	*Nest A*			*Nest B*			*Nest C*	
Coronal	5/5	5/4	3/4	5/4	1/2	6/6	3/4	4/3
Occipital	3/3	3/3	3/3	3/4	3/3	3/3	3/3	3/3
Orbital	1/3	1/2	2/0	0/0	0/0	0/0	0/0	0/0
Spinal	7/7	6/6	7/6	7/7	4/5	6/9	7/7	9/9
Scapular	7/7	6/6	7/7	6/6	6/6	6/6	7/6	6/6
Femoral	4/4	5/4	4/4	3/4	0/0	2/3	2/2	0/1
Greater Secondary Coverts	3/3	3/3	2/2	4/4	2/2	3/3	2/2	2/2
Total	62	57	54	57	34	56	48	48

each tract or region and to assign it (bilaterally) to that tract/region as done by Collins & Minsky (1983). By this method a total of 54 neossoptiles would seem to characterize this flycatcher. When a larger number of specimens is available, a 'typical' number can be chosen based on the number of neossoptiles most frequently observed in each tract or region (Collins 1973). By this method, a typical total of 54 neossoptiles per individual is again indicated. This figure is consistent with the median total number of neossoptiles per individual (54–56) but slightly higher than the average of 52 neossoptiles per individual for the 8 specimens examined here (Table 1). The intraspecific and inter-nest differences reported here do not seem to have been effected by any ontogenetic influences. The highest numbers of neossoptiles were from the slightly older nestlings in nest A which could have been expected to be subjected to some loss through abrasion; the lowest number of neossoptiles were from the newly hatched young in nests B and C (Table 1). As also noted by Clark (1967), the presence of neossoptiles in additional tracts, such as the orbital region of the capital tract in the nestlings from nest A, seems most likely to occur in those individuals with the greatest total number of neossoptiles. The total number of neossoptiles present in the Ochre-bellied Flycatcher is very low when compared to the numbers recorded for open cup nesting species, some of which have in excess of 600 neossoptiles (Collins, unpubl.). Such a low number is however typical of a number of other closed-nest building species particularly among the Tyrannidae (Collins & McDaniel 1989). This correlation should be examined further in other passerine families for possible taxononic as well as ecological implications.

In previous studies of passerine natal pterylosis most attention has been given to interspecific differences (Collins 1963, Collins & Kemp 1976, Collins & Minsky 1982, 1983, Collins & McDaniel 1989, Ingels 1979, Markus 1970, Wetherbee 1957). The topic of intraspecific variation has not been given similar attention. This is mostly due to the very small number of individuals per species examined in these studies; only 4% of the species considered in these 8 studies were represented by more than

10 individuals, while 75% were represented by only 3 or fewer specimens. The near anecdotal approach in these studies is related to the scarcity of appropriate specimens in most museum collections and the difficulty of obtaining large numbers of individuals for natal pterylosis studies for all but some colonially nesting species (Clark 1967). Even so, the matter of intraspecific variation must receive more attention than it has to date before detailed interspecific comparisons can be made and their taxonomic implications evaluated.

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Behaviour and vocalizations of an undescribed Canastero *Asthenes* sp. from Brazil

by Mark Pearman

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The genus *Asthenes*, comprising some 21 species are largely terrestrially adapted members of the *Furnariidae*. They are found in a wide range of open and semi-open habitats from Andean and Patagonian steppe to marsh, chaco and pampa.

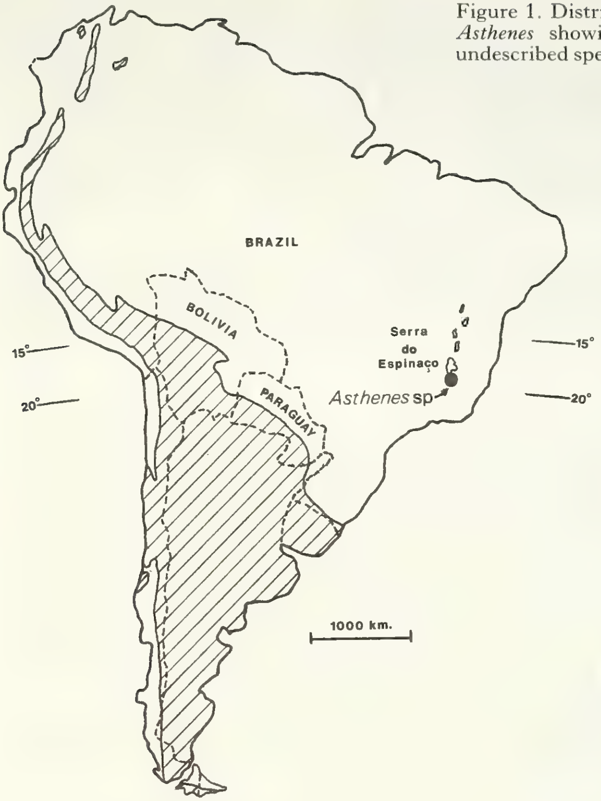

Figure 1. Distribution map of the genus *Asthenes* showing the location of the undescribed species.

On 13 August 1988, J. Hurrell and M.P. observed a *Furnariid* in Minas Gerais, Brazil which was immediately identified as an *Asthenes*. M.P. had had previous experience of the genus. Unbeknown to them, 2 other British observers S. Cook and B. Forrester had independently seen birds of the species a few weeks previously in the same area.

A. Brandt and B. Forrester have recently informed me that J. Vielliard had collected specimens in 1987, but a description is not pending until the last named has carried out further fieldwork. After carrying out extensive fieldwork personally in 1988 and 1989, and due to the long time lapse since the original discovery, lack of any information on the species in the literature and no definite forthcoming description, I feel there is a need to publish the present findings.

All the new *Asthenes* sp. were observed in a 10 km^2 area at Alto Boa Vista (19°17′S, 43°34′W), Serra do Cipó (in the Serra do Espinaço), Minas Gerais, Brazil between 1290 m and 1500 m altitude (Fig. 1). The area lies close to Pargue Nacional Serra do Cipó, but the species was not observed within the Park boundaries. The collecting of specimens was not possible.

Distribution of the genus *Asthenes*

The 21 species of *Asthenes* as currently recognized are further divided into 51 subspecies. Seventeen of the species can be described as exclusively Andean or sub-Andean and will not be dealt with further. Among the new *Asthenes* sp.'s nearest neighbours are those found in the Sierras de Cordoba, in central Argentina (c. 1950 km WSW), namely *A. sclateri sclateri*, the nominate race of Cordoba Canastero; *A. modesta cordobae*, an isolated race of Cordilleran Canastero; and *A. steinbachi neiffi*, a race of Chestnut Canastero. Both Patagonian Canastero *A. patagonica* and Austral Canastero *A. anthoides* can be found to the south and west of these isolates. *A. patagonica* is endemic to the central Argentine Patagonian scrub; *A. anthoides* is restricted to wet grasslands in the Andean foothills of southern Chile and Argentina and also occurs on Tierra del Fuego. The congeners closest in range to the new *Asthenes* sp. are Lesser Canastero *A. pyrrholeuca*, Short-billed Canastero *A. baeri* and Hudson's Canastero *A. hudsoni*. *A. pyrrholeuca* occupies extensive Patagonian scrub throughout southern Chile and Argentina, with movements to northeast Argentina and Uruguay, together with resident populations in northwest Argentine, south Bolivian and west Paraguayan chaco. *A. baeri* occurs throughout north and central Argentina, Uruguay, Rio Grande do Sul, Brazil and southern Paraguay. *A. hudsoni* is dependent on marshes and reedbeds in northeast Argentina, Uruguay and Rio Grande do Sul, Brazil. The new *Asthenes* sp. is separated from its geographically closest relative, *A. baeri*, by at least 1450 km to the southwest.

Field work

On 13 August 1988, one of the new *Asthenes* sp. was located and sound recordings made of its song and contact call. It was observed intermittently for a total of 3 hours and was seen down to a minimum of 3 m. A pair holding territory was studied on 14 August 1988 and detailed notes were taken in the field. Further study work of the genus was carried out at the British Museum (Natural History) a month later.

On a second visit to Serra do Cipó, J. Hurrell and M.P. found a maximum of 7 birds on 28 July 1989, using tape play back lure. All suitable habitat was covered over the 10 km^2 area, and additional information on plumage, vocalizations and behaviour collected. Sonagrams were made from the undescribed *Asthenes* sp. tapes, together with 6 of its congeners, at the British Library of Wildlife Sounds (National Sound Archive), London. Subspecies of species geographically closest to the Serra do Espinaço were chosen for comparison material.

The new *Asthenes* sp. is dependent on isolated groups of rocky crags in an area of undulating grassland. These hillocks, covered in boulders and brittle rock slabs were well weathered, providing numerous crevices. They supported a varied flora compared to the barren and open surrounding grassland. Vegetation identified included flowering shrubs: *Compositae*, *Vernomia* sp. and others, *Agave* sp., *Yucca* sp. and various cacti. Additionally, lichen was present on the rocks. The birds preferred the steepest slopes with the most vegetation and crevices (Plates 1, 2).

Description of the new *Asthenes* sp.

Forecrown and crown warm brown, sometimes with a hint of rufous, slightly warmer than rest of upperparts. Supercilium narrow, off white, from bill to behind eye, curving downwards around rear edge of ear coverts. Eyestripe brown, indistinct across lores, stronger behind eye, highlighting supercilium. Ear coverts grey brown, very finely streaked black (only visible at close range). Nape, mantle and rump brown with grey tones. Remiges chocolate brown with warm brown inner webs, tertials often with distinct pale grey fringes. Alula sometimes whitish. Rectrices graduated with rounded tips, central tail feathers dark brown, the rest rich chestnut rufous.

Chin and upper throat variable; in most individuals white, with fine, but sharply defined black streaks creating a triangular patch in centre. One singing male had a wholly black centre to chin and upper throat. One bird in fresh plumage, perhaps a first year, had streaking restricted to upper chin. Sides of throat, breast, belly and vent uniform cold grey.

Iris black. Bill relatively long for the genus, about three-quarters length of the head; upper mandible grey, tipped black, lower mandible black with grey basal third. Tarsi and feet dull flesh or grey.

Plumage comparison with other Asthenes *spp.*

The major plumage characteristics used in field identification of *Asthenes* spp. are the tail pattern, each showing specific amounts of rufous/cinnamon; the chin/throat pattern which is sometimes streaked, light to heavy, often with a chin spot, in colour pale orange to brick red; the presence or lack of streaking on the mantle; and the shape of the tail feathers, rounded or pointed.

Seven species share the combined features of pointed tail feathers and well streaked upperparts: *wyatti, anthoides, punensis, maculicauda, urubambensis, sclateri* and *hudsoni*. Of the 14 remaining species, 4 have streaked throats. The small in size *patagonica* is superficially similar to the new *Asthenes* sp., with streaked throat and ear coverts and a warmer brown crown, but it shows only the basal two-thirds of the outermost tail feathers rufous. *A. humilis* can show a rufous throat patch or streaking or both, but shows cinnamon on the outer tail feathers only. *A. humicola* shows dull rufous, at maximum, on the basal two-thirds of the outermost tail feathers. *A. steinbachi* usually shows dull rufous flanks and vent, the outer 2 tail feathers and outer web of the next tail feather rufous, limited chin and throat flecking and little or no supercilium.

Vocalizations

Singing birds of the new *Asthenes* sp. were typically territorial and used the highest and most exposed rock or bush from which to deliver their songs. Of 5 song study species, the structure of the new *Asthenes* sp. was similar only to nominate *A. dorbignyi*.

A. modesta modesta, A. wyatti graminicola, A. humilis robusta and *A. baeri baeri* typically deliver either glissando or vibrato songs (Fig. 2A,B), a rapid series of sharp liquid notes, rising or varying in pitch, in bursts of 1.5–4 seconds, in the 1.5–7.5 KHz range. *A. b. baeri* typically delivers audibly separate notes which develop into a descending vibrato in the 2.7–7.5 KHz range, incorporating 50–66 notes and lasting 4 seconds.

The new *Asthenes* sp. typically sings 11 descending notes in 3.1 seconds. The first 8 notes are loud and sharp with piercing quality in the 4.3–5 KHz range. They are followed by 3 contrasting low pitch notes at 0.2 KHz, together with harmonies peaking at 4.3 KHz (Fig. 2C).

A. d. dorbignyi shows a more complex song repertoire, but the main component is structurally similar to the new *Asthenes* sp. There is some geographical variation. The usual song is a series of 14 notes descending in 3.4 seconds in the 3.8–4.8 KHz range, typically showing strong harmonies on the ultimate 4 notes, peaking at 7 KHz (Fig. 2D). Other *A. d. dorbignyi* song phrases, usually given before the main song, include a series of high pitch, low pitch notes, a short burst of rapid trill, rising in pitch and running into the song or, in a study tape from La Paz, Bolivia, a phrase of 16 harsh, scolding notes in the 4.2–5.6 KHz range with harmonies on every note in the 3.6–6.5 KHz range (Fig. 2E). La Paz individuals also gave the typical song phrase.

From sonagraphic comparison of nominate *dorbignyi* in Cochabamba and La Paz with the new *Asthenes* sp. at Serra do Cipó, several interesting facts emerge. The highest altitude birds (*dorbignyi* at La Paz—3200 m) sang fastest, at 16 notes per second; at Cochabamba (2950 m), *dorbignyi* delivered 14 notes per second; whereas the new *Asthenes* sp. at Serra do Cipó (1500 m) sang only 11 notes in 3.1 seconds.

Although geographical song variation in *dorbignyi* appears to invalidate comparisons, the significant difference in songs between that species and the new *Asthenes* sp. is the pitch. Whereas *dorbignyi* at La Paz and Cochabamba showed a pitch variation of 1.4 KHz and 1 kHz respectively, the new *Asthenes* sp. showed a pitch variation of 4.8 KHz.

Taped calls of 4 study species (*A. d. dorbignyi, A. wyatti graminicola, A. humilis robusta* and *A. pyrrholeuca flavigularis*) showed the contact call of the new *Asthenes* sp. was not similar in structure or sound. The contact call of nominate *dorbignyi* is a rising piercing "*shreep*" note in the 3.2–6.2 KHz range at 2.7 second intervals (Fig. 3F). *A. wyatti graminicola* calls a series of "*tick*" and "*took*" notes in the 3.1–6.9 KHz range (Fig. 3G). *A. humilis robusta* calls in bursts of churring notes, lasting typically c. 20 m. seconds, given in pairs or triplets in the 3.5–5.5 KHz range (Fig. 3H). *A. pyrrholeuca flavigularis* has a rising "*swiip*" contact note at 0.6–0.8 second intervals in the 2.4–7.1 KHz range (Fig. 3I).

The contact call of the new *Asthenes* sp. can be described as a high-pitched "*jlit*", with a metallic quality, and repeated at 2 second intervals (Fig. 3J). An enlarged sonagram shows that the 3 components vary from 4663–6163 Hz in 130.2 m. seconds (Fig. 3K). To the human ear however, it sounds like a 2 syllable note.

Contact calls in the genus *Asthenes* appear to be constant, without geographical variation. Sonagraphic comparison with 4 *Asthenes* spp. contact calls appear to indicate that the new *Asthenes* sp. has a very distinct call.

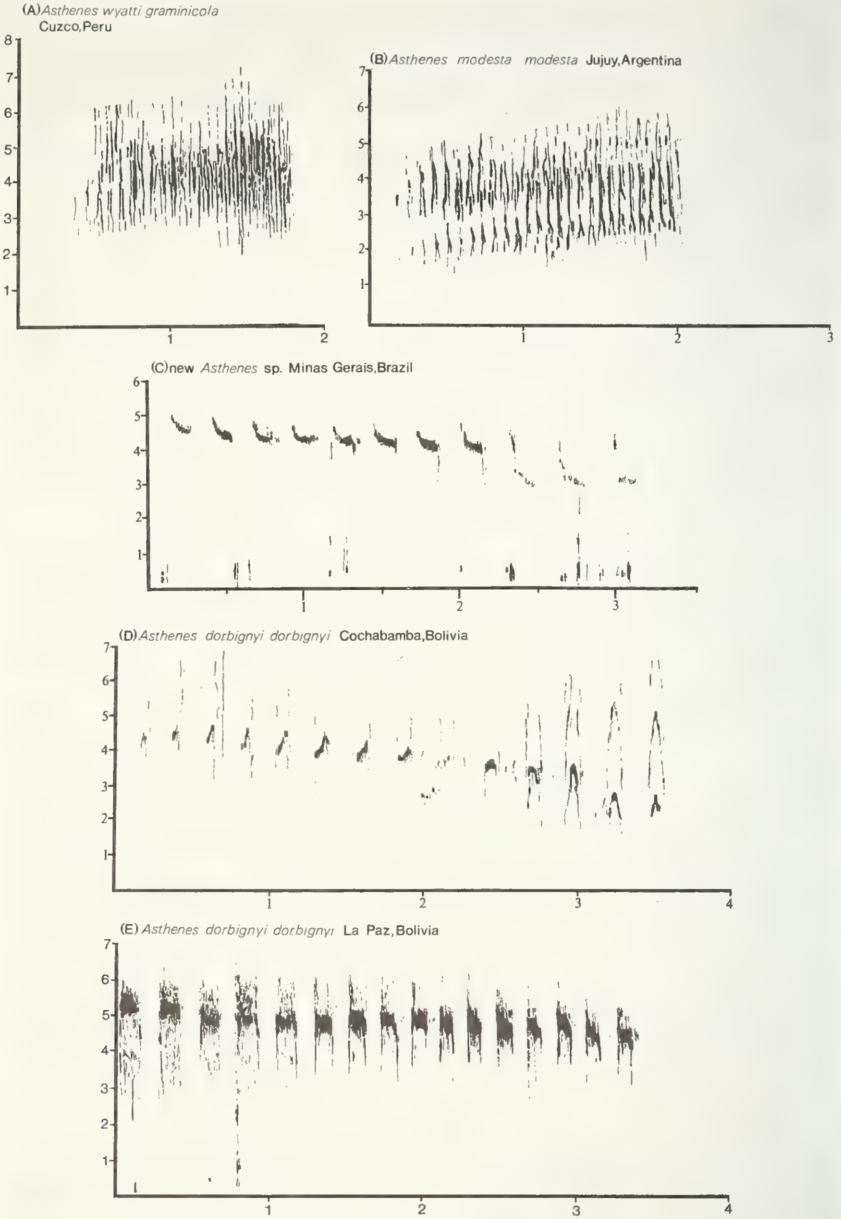

Figure 2. Sonagrams (in the 300 Hz bandwidth) of songs (A–E) of the new *Asthenes* sp. and other species in the genus *Asthenes*. Compare especially the new *Asthenes* sp. (C) with that of *A. d. dorbignyi* (D).
Vertical scale = Frequency (KHz). Horizontal scale = Time (seconds). Tapes (A,B,D,E) by N. Krabbe, (C) by M. Pearman. Sonagrams by R. Ranft, reproduced by M.P.

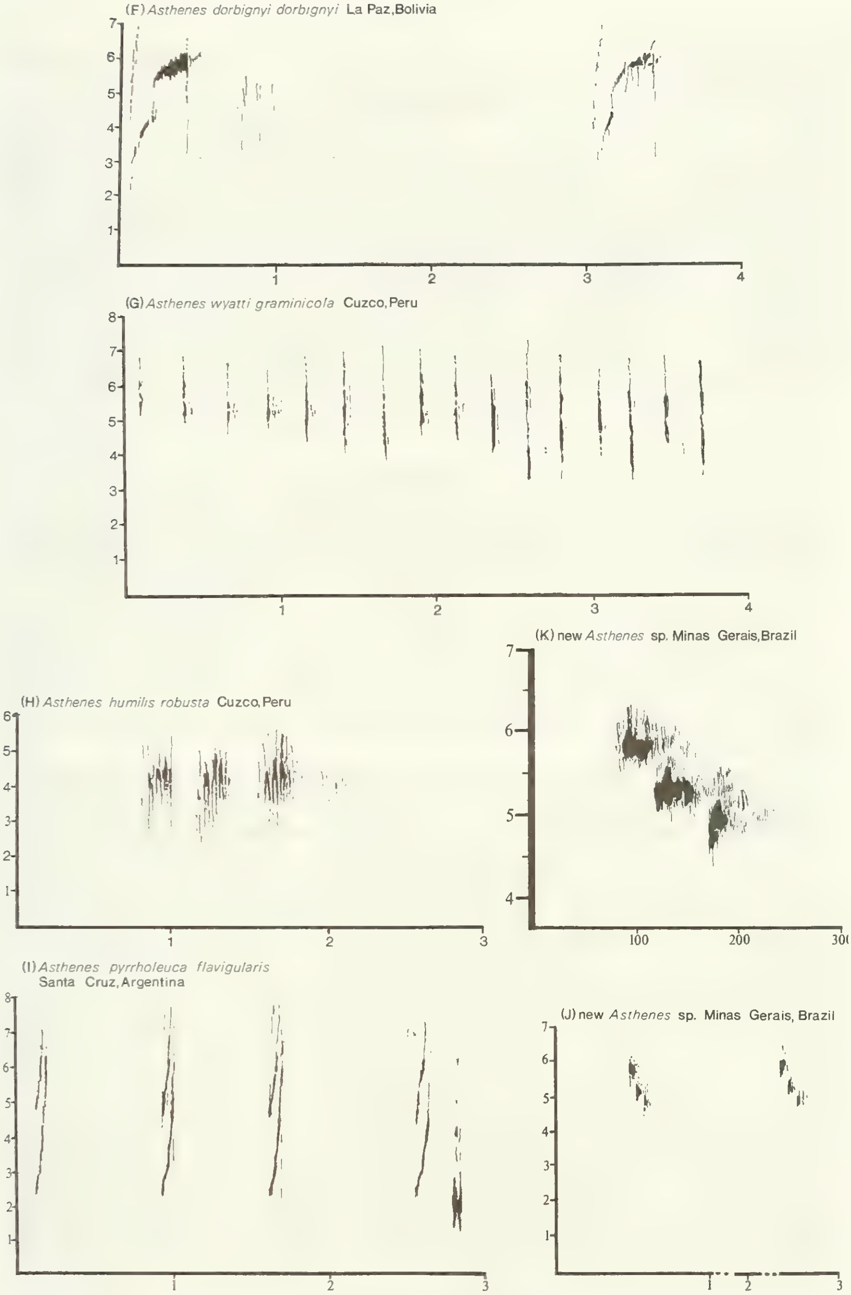

Figure 3. Sonagrams (in the 300 Hz bandwidth) of contact calls (F–K) of the new *Asthenes* sp. and other species in the genus *Asthenes*. The single call note at the end, in the 1.2–4.4 KHz range, on sonagram (I), is from a Long-tailed Meadowlark *Sturnella loyca*. Compare contact call of the new *Asthenes* sp. (J,K) with those of 4 other species in the genus *Asthenes* (F,G,H,I).
Vertical scale = Frequency (KHz). Horizontal scale on (F,G,H,I,J) = Time (seconds), and on (K) = Time (m.seconds). Tapes (F,G,H,I) by N. Krabbe, (J,K) by M. Pearman. Sonagrams by R. Ranft, reproduced by M.P.

Behaviour

Canasteros at Serra do Cipó acted in typical *Asthenes* fashion, cocking their tails at varying angles, most often at 45° (Plate 3). When landing after a flight, birds often cocked their tail into a forward angle over the head. One individual on 13 August 1988 was observed flicking its wings in short bursts and tail cocking simultaneously, while remaining silent.

The new *Asthenes* sp. is mainly terrestrial, searching rocks and crevices and climbing to the tops of bushes (c. 1.5 m above the ground) to sing. Males in full song were strongly territorial and responded well to tape playback. Non-singing individuals were initially drawn out by playback, but often vanished into crevices. Estimates of territory size varied from 15 to 30 m^2.

Status

Fieldwork indicates that the new *Asthenes* sp. is not uncommon in a small area at Serra do Cipó, Minas Gerais, Brazil. Presumably other locations in the Serra do Espinaço, with suitable habitat, hold the new *Asthenes* sp. Fieldwork at Caraça (19°58′S,43°29′W), at the northern end of the Serra da Mantiqueira, Minas Gerais (75 km south of Serra do Cipó), in August 1989, failed to detect the new *Asthenes* sp. in suitable habitat between 1250 and 1550 m using playback of the Cipó tapes. This fact, together with the lack of any observations of the new *Asthenes* sp. outside Serra do Cipó, would appear to indicate that the species is, at least, endemic to the Serra do Espinaço.

The Serra do Espinaço is home to 3 other endemic species: Hyacinthe Visorbearer *Augastes scutatus,* Gray-backed Tachuri *Polystictus superciliaris* and Pale-throated Serra-finch *Embernagra longicauda.* The former 2 are regarded as 'red Data species' (see Collar & Andrew 1988) although *E. longicauda* is scarcer at Serra do Cipó. These 3 species occupy the same rocky outcrops at Serra do Cipó as the new *Asthenes* sp. The area is outside the National Park and is used for cattle grazing. The grassland is periodically burnt and large fires were seen in July 1989. If fires are regular, there may be threat to the survival of the 4 endemics; but presumably the fires are long standing and the populations have adapted.

Conclusion

The discovery of a new species of *Asthenes* in the isolated Serra do Espinaço, Minas Gerais, Brazil, suggests, along with vocalization and plumage data, that the species has had a long history of isolation. Although its relationships remain unclear, from a vocalization analysis and plumage study, its closest relatives are possibly *A. dorbignyi* and *A. patagonica*.

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The Cochineal Creeper and the Fascinating Grosbeak: a re-examination of some names of John Latham

by Ian A. W. McAllan

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Perusal of the recent literature of New Caledonian birds reveals the existence of 2 names for the same honeyeater. Salomonsen (1967) used the name *Myzomela sanguinolenta* (Latham 1801) for the Scarlet Honeyeater of New Caledonia; presumably this was the source of its use by Keast (1985). Other authors have regularly used *M. dibapha* (Latham 1801), for example Mayr (1932, 1945), Koopman (1957), Delacour (1966), Vuilleumier & Gochfeld (1976), Stokes (1980) and Hannecart & Letocart (1980). Indeed the papers of Koopman and Salomonsen are at direct odds. Although they both recognized that *M. caledonica* Forbes 1879 is in fact the subspecies of a *Myzomela* found on New Caledonia, each has placed it under a different species names, *dibapha* and *sanguinolenta* respectively.

Wallacean birds in the *sanguinolenta*/*dibapha* grouping have either been placed in *dibapha* (e.g. Mathews 1930), *sanguinolenta* (e.g. Watling 1983, White & Bruce 1986), separated as a single allospecies *M. boiei* (S. Müller 1843) (e.g. Wolters 1982) or split into 3 allospecific groupings

M. boiei, *M. chloroptera* Walden 1872 and *M. wakoloensis* Forbes 1883 (e.g. McKean 1982, presumably following Salomonsen 1967).

Australian birds have usually been placed in *sanguinolenta* (oppositely to most authors for New Caledonia) and this name has been consistently used throughout Australian journals. The only author (apart from G. M. Mathews) to have used *dibapha* for Australian birds this century is Koopman (1957),and he was undoubtedly following Mathews' various works.

Mathews (1927) first used *dibapha* in the supplement to his *The Birds of Australia*, where he noted;

> "*Certhia sanguinolenta* Latham, 1801, is indeterminable. Read *Myzomela dibapha* (Latham).
>
> *Certhia dibapha* Latham, Index Ornith. Suppl. p. xxxvii, 1801 (after May 30th): New South Wales (Watling drawing No. 108, not 107, and is the Cochineal Creeper)."

Mathews later (1930, 1931, 1946) used *dibapha*, the *Systema* work of 1930 being probably the most important in keeping this name in the literature. A more detailed account of these names of John Latham is clearly necessary.

Myzomela sanguinolenta and *M. dibapha* were described on the same page, xxxvii, of Latham (1801b) under the genus *Certhia*.

C. sanguinolenta was described as:—

> "Certhia coccineo-fanguinea, dorfomaculis deformibus nigris, fubtus cinerea, gula juguloque albis." and is referred to the **Sanguineous Creeper** in Latham's *General Synopsis of Birds*, Supplement II (1801a).

C. dibapha was described immediately below *C. sanguinolenta* as:—

> "C. coccineo-rubra abdomine albo, maculis dorfi pectoris per oculos alis caudaque nigris." and is referred to the **Cochineal Creeper** in Latham (1801a).

It has been generally assumed that Latham based his descriptions on copies that he made of drawings and paintings that passed through his hands, one of the major series of these being the Watling drawings (see Sawyer 1949,. Hindwood 1970). The Watling drawings were made between 1788 and 1795 and appear to have been assembled by Surgeon-General John White in Australia, a principal artist being Thomas Watling. Upon his return to England in 1797, White gave at least some of the drawings to A. B. Lambert. Lambert then made copies of the Watling drawings (the Lambert drawings) and lent these to Latham, who returned them in January 1800 (see especially Hindwood 1970). Strickland (May, 1843), when reviewing the Lambert drawings, noted that Latham wrote on each drawing the name which he intended to give to the species pictured. Sharpe (1906) noted that the Watling drawings all bore, in Latham's hand, the common and scientific names and a reference to where Latham published his name first, these annotations obviously written at a later date.

The first person to review the paintings was G. R. Gray in Dec 1842 (publ. 1843) when he noted that *Certhia dibapha* could be recognized as a distinct species in the genus *Myzomela*; but he was not able to identify *C. sanguinolenta* with any known species.

Strickland (1843), who was helped by Gould, had suggested that *C. sanguinolenta* was probably the female of *Myzomela dibapha*. Shortly afterwards Gould (June, 1843) published part xi of his *Birds of Australia*, where the name *Myzomela sanguinolenta* is used; he was almost universally followed after this date, especially in Australia.

When reviewing all the Watling drawings, Sharpe (1906) referred drawings number 107 and 108 to *Certhia dibapha*, the Cochineal Creeper, 109 to *C. sanguinolenta*, the Sanguineous Creeper and 120 to *C. erythropygia*, the Red-rumped Creeper. Usually considered a junior synonym of both the other names, *C. erythropygia* was described by Latham (1801b) on page xxxviii, the page following that on which the former 2 were described. Hindwood (1970) referred all 4 paintings to *Myzomela sanguinolenta*, ignoring Mathews' (1927) earlier comments.

The description of the Sanguineous Creeper in Latham (1801a) is accompanied by an etching (plate 130) which corresponds reasonably well in patterning, though not exactly in pose, with Watling drawing 109 (I have examined black and white photographs of the Watling drawings lodged at the Mitchell Library, State Library of New South Wales). Strickland (1843) noted that this etching was not one of the exact copies of the Watling drawings, but this is not surprising given that the etching would have been drawn from Latham's copy of the Lambert drawing, which was itself a copy of the Watling drawing.

The English description and the etching (in Latham 1801a), the Latin description (in Lathan 1801b) and Watling drawing 109 reveal the same features, i.e. those of *C. sanguinolenta*, namely a white chin and throat, but otherwise completely dull brown below. If the bird had been an immature male Scarlet Honeyeater from Australia, it would have had either some scarlet markings on the chin or at least have been completely brown below (as in *C. erythropygia*, Watling drawing 120). The bases of the body feathers of adult male Scarlet Honeyeaters are usually black, hence occasionally creating an appearance of black blotching within scarlet and white areas when the plumage is worn or ruffled. Some of the body feathers do not have black bases, however, but tend towards the pale brown of immature or female birds, though never white.

Mathews (1927) was thus correct (and Gray before him) in assuming that *C. sanguinolenta* was not readily identifiable with the Scarlet Honeyeater of Australia. Mathews chose Watling drawing 108 as the drawing of the lectotype of *C. dibapha* Latham 1801, and not 107, for the Cochineal Creeper, presumably because the bird pictured in 107 does not have the black loral streak found in Scarlet Honeyeaters, while drawing 108 does have this feature.

The name for the Australian bird (Latham's Sanguineous Creeper) must, indeed, be *Myzomela dibapha* (Latham 1801) and not *M. sanguinolenta* (Latham 1801). A quick check in any usual reference for *Myzomela* (e.g. Forbes 1879, Salomonsen 1967) would suggest that the genus was based on *Meliphaga cardinalis* Vigors & Horsfield 1827, which is a junior homonym of *Certhia cardinalis* Gmelin 1789 and a junior synonym of *Certhia sanguinolenta*. This would normally create nomenclatural problems suggesting either a replacement genus-group name (in this case *Melomyza* Mathews 1913) or an application to the International

Commission of Zoological Nomenclature for a new type species for *Myzomela* (see Article 70 of ICZN 1985). Fortunately most reference works are incorrect in this instance.

Strickland (1843) was the first to assign *Myzomela cardinalis* (Vigors & Horsfield 1827) to another species. The species he chose was *Certhia dibapha* Latham 1801, previously considered a junior synonym of *C. sanguinolenta* and thus previously ignored in nomenclatorial citations. If separated into the 5 allospecific groupings of Salomonsen (1967), New Caledonian birds become *M. caledonica* Forbes 1879.

It is of interest to note that there is another painting besides Watling's *M. dibapha* from the early 1790's. Painting 54 in the Sydney paintings, lodged in the Mitchell Library, is probably a better interpretation of the species than Watling drawing 108, which Mathews chose as the type (see also Hindwood 1965).

To summarize: *Certhia sanguinolenta* Latham 1801 [=*Myzomela sanguinolenta*] is indeterminable. The next available name for the Scarlet Honeyeater is *Certhia dibapha* Latham 1801. This does not affect the availability of the genus-group name *Myzomela* Vigors & Horsfield 1827. The valid name for the Scarlet Honeyeater from Australia is thus *Myzomela dibapha* (Latham 1801).

Another name of Latham's from the same work (1801b) has caused similar problems. *Loxia fascinans* was described on page xlvi as:

> "L. fufco-nigra fubtus alba, rectricibus exterioribus albis." and referred to the Fascinating Grosbeak in Latham (1801a).

Gray (1843) could not identify this species either, though Gould (in Strickland 1843) identified it with the species now known as the Jacky Winter in Australia. Strangely, Gould used *Microeca macroptera*(Vigors & Horsfield 1827) for this species in part xxxii of his *Birds of Australia* (1848) and later reverted back to *M. fascinans* in his *Handbook to the Birds of Australia* (1865).

Sharpe (1879) also referred the Jacky Winter to *M. fascinans*. When he reviewed the Watling drawings in 1906 he did not mention finding a portrait of *Loxia fascinans* but did note that the White-tailed Warbler (painting 201) was a synonym of *Loxia fascinans*. This bird was described on page lv of Latham (1801b) as *Sylvia leucophaea*;

> "S. fufca fubtus albo-caerulefcens, macula remigum rectricibufque (2 intermediis exceptis) albis." and referred to the White-tailed Warbler of Latham (1801a).

Microeca fascinans was used until 1923 when Mathews (1923a) noted;

> "*Loxia fascinans* Latham cannot be used for the Brown Flycatcher. The next name is *Sylvia leucophaea* Latham Index Ornith. Suppl., p. lv., 1801 (after May 30th)."

M. leucophaea did not gain wide usage until RAOU (1960) stated that *leucophaea* had priority over *fascinans*, an obviously false statement. McAllan & Bruce (1989), following the reasons given by RAOU (1960), again used *fascinans* once they had determined its priority.

Mayr (*in* Mayr & Cottrell 1986) referred the change of name from *fascinans* to *leucophaea* to Mathews (1930). Unfortunately Mathews gave no cogent reason for the change of name in this work. He had, however, earlier given some explanation. In 1923 he was able to examine the tracings made by G. R. Gray when Gray reviewed the Lambert drawings (Mathews 1923b). These tracings totalled 54 in number and had written on them in Gray's hand the names given to the birds by Latham and the number of the drawing from the Lambert drawings. In 50 of these tracings Mathews had been able to determine that they were direct copies of the Watling drawings, but 4 could not be identified with this series.

Of these 4 tracings, one was undoubtedly a copy of one of the missing Watling drawings (*Anas rhynchotis* Latham 1801), one was a further picture of *Turdus volitans* (figured twice in the Watling drawings), one was an alternative picture for *Certhia chrysotis* (=*Meliphaga fusca* Gould 1837, see Salomonsen 1967), while the last missing drawing was *Loxia fascinans*. As all the other tracings of Gray were correct it must be assumed that the tracing of *L. fascinans* was correct.

Mathews then noted;

> "*Loxia fascinans* is based on the Lambert drawing which is absolutely and definitely not the *Microeca* with which the name has been associated, but is of some Finch as the genus chosen by Latham indicated. It is comparable with B.M. No. 168 [=Temporal Finch, *Neochmia temporalis* (Latham 1801)], but that is also a Finch. As already recorded, *Sylvia leucophaea* Latham given to Lambert, Dr III, 28 (B.M. No. 201) represents the *Microeca*, and this specific name must be used."

This conclusion was also suggested by Gray (1843) who, when not able to identify the species was still able to assign *L. fascinans* to the genus *Estrelda* (*sic*).

This is at direct odds with Gould (*in* Strickland 1843) who determined that *Loxia fascinans* was the same as *Microeca macroptera* (Vigors & Horsfield 1827), which is definitely a Jacky Winter (note that the type [which lacks a tail] of this name was examined by Sharpe in 1879 and is still in the British Museum—Warren & Harrison 1971). However, Gould must have been mistaken as he also determined that *L. fascinans* was the same as *S. leucophaea*, which is definitely not a Jacky Winter.

Hindwood (1970) when discussing Watling drawing 201 (the Whitetailed Warbler=*Sylvia leucophaea*) noted;

> "201. (3/28). Rose Robin, *Petroica rosea* female. Sharpe identified this drawing with the Jacky Winter *Microeca leucophaea*, and the remarks on the sheet about the habits of the bird agree well with that species: however, the white on the wing and the relatively long tail best suit the Rose Robin."

Hindwood was correct in the assumption that the species concerned was not a Jacky Winter. I have also examined a black and white photograph of this drawing and it does not correspond with this species. Not only does it have a white wing bar but it also lacks the white superciliary stripe found in the Jacky Winter.

Hindwood's assertion that it was a female Rose Robin *Petroica rosea* Gould 1840 is however also not tenable, as this species has 2 wing bars. The female Flame Robin *P. phoenica* Gould 1837 often appears to have one wing bar, but it also has an obvious white forehead (absent in Watling drawing 201). Other species that look similar and have white wing bars are the Dusky Robin *Melanodryas vittata* (Quoy & Gaimard 1830) and the female Hooded Robin *Melanodryas cucullata* (Latham 1801). In both cases however they have less white in the tail than Latham's White-tailed Warbler. The "relatively long tail" as noted by Hindwood does not agree well with any of the Australian flycatchers apart from the genus *Rhipidura*, which it is definitely not.

The only conclusion that can be drawn from this is that both *Loxia fascinans* and *Sylvia leucophaea* are indeterminable. Gould himself may have been undecided on his determination of the paintings concerned as he used the name *Microeca macroptera* 5 years later (see above). In such a situation the next available name for the Jacky Winter or Brown Flycatcher is Gould's second choice, *Microeca macroptera* Vigors & Horsfield 1827. The genus-group name stays as *Microeca* as this is based on the subspecies *assimilis* described by Gould in 1841.

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The nest and eggs of *Phylloscopus budongoensis*

by D. T. Holyoak

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The Uganda Woodland Warbler *Phylloscopus budongoensis* is a local bird of eastern Zaire, Uganda and western Kenya. Its nest and eggs have apparently not been described. This note records information on a nest found in Kakamega Forest, W. Kenya on 31 August 1989, inside tall shady forest with well developed understorey on the slight slope of a hill at c. 1700 m elevation. The incubating bird was identified very clearly, the nest being first found as a consequence of its flying out and perching nearby, and again soon afterwards as it again left the nest when I returned with Mr Marcel Holyoak to take photographs.

The domed nest was placed in a slight recess between buttresses at the base of a tree, c. 50 cm above the ground, within a hanging mat of a long pleurocarpous moss. Its external measurements were c. 19 cm high and c. 12 cm wide. The rounded entrance hole of 4.5 cm diameter was positioned towards the top of the outer facing side of the nest. The outside of the nest was built entirely of the same moss that surrounded the structure and the interior consisted of similar fragments. The deep cup was thickly lined with fibres and down from plants.

There were 3 fresh eggs, 2 of which measured c. 16.0 × 11.7 and 16.0 × 12.0 mm. They had a white ground colour, with spots and small blotches of light chestnut all over the surface, but in greater concentration around the larger end.

Photographs of the nest and eggs have been lodged with the Sub-department of Ornithology, British Museum (Natural History).

Both nest and eggs are similar to those described for other Afrotropical *Phylloscopus*, such as *P. ruficapillus* and *P. umbrovirens* (Mackworth-Praed & Grant, 1960: 386–389) and generally similar also to those of European species of this genus.

Reference:
Mackworth-Praed, C. W. & Grant, C. H. B. 1960. *African Handbook of Birds* Ser. 1, vol. 2. *Birds of Eastern and North-eastern Africa*. 2nd edn. Longmans.

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Discovery of the King of Saxony Bird of Paradise *Pteridophora alberti* nest, egg and nestling, with notes on parental care

by Clifford B. Frith and Dawn W. Frith

Received 23 February 1990

The King of Saxony Bird of Paradise *Pteridophora alberti* represents a monotypic genus of the family Paradisaeidae and is one of the most bizarrely sexually dimorphic species, in which it is assumed males are promiscuous and females alone attend the nest. It lives in cloud forest 1500–2850 m a.s.l. on the central mountains of New Guinea, from the Weyland and Snow Mountains of Irian Jaya eastward to the Bismarck and Kratke Ranges of Papua New Guinea; it is less common at its lower altitudinal limits. For details of morphology and distribution see Gilliard (1969), Cooper & Forshaw (1977) and Beehler *et al*. (1986).

The bizarre appearance of the adult plumaged male King of Saxony Bird of Paradise has attracted great interest ever since its description in 1894, which even the great British Museum ornithologist Bowdler

Sharpe thought must have referred to an artifact or hoax specimen. By the time of his monograph of the Paradisaeidae, Sharpe (1898) was, however, convinced of the authenticity of the remarkably plumaged mature male and he stressed the great need for information on the nesting of birds of paradise, especially for forms such as *Pteridophora*. Remarkably this knowledge has eluded numerous expeditionaries, collectors and ornithologists ever since, until now.

At 1030 hr on 24 December 1988 a female-plumaged (assumed female, see below) King of Saxony Bird of Paradise was seen carrying a piece of moss in her bill and flying to a nest 10.9 m up in a large tricate upright branch fork of a *Timonius belensis* tree, situated on a gentle slope at an altitude of 2665 m a.s.l., at Tari Gap (5°57′S, 143°10′E), Southern Highlands Province, Papua New Guinea (Plate 5). Three other *Timonius belensis* trees were in the immediate area, which consisted of disturbed mixed beech moss forest, with few large trees other than *Pandanus tectorius* palms, and was within 25 m of a disused native hunting hut. Fruits of *Timonius belensis* are a significant food of the King of Saxony Bird of Paradise in the Tari Gap (Frith & Frith in prep). The female added the moss to the nest and left, to return 15 mins later with fine tendril-like material, which she added before sitting in the nest cup to shape it with her breast and adjust the interior with her bill. The nest tree was 30 m into the forest from the edge of subalpine grassland (see Plates 5 and 7). For details of this habitat and our other ornithological studies there see Frith & Frith (1988, 1990 and references therein). Our watches of activity at this nest were made from the grassland edge, c. 30 m from the nest tree with 8 × 42 field glasses (note D.W.F. in Plate 7).

On 25–27 December the bird was seen adding small fine curved stems or rootlets to the nest lining. On 28 December the bird did not appear 0800–0845, but during a brief watch 1335–1345 she arrived without material and sat herself on the nest to shape it, and then left. On 29, 30 and 31 December at 1330–1430, 0815–0915 and 1315–1405 respectively no bird was present. On 2 January 1989 a watch was started at 0750 and at 0758 the female arrived and sat still in the nest, obviously incubating, until we left at 0810. At 0800 and 1200 on 5 and 6 January respectively the female was incubating.

The egg was examined at 1130 on 10 January; it measured 33.6 × 23.5 mm, and weighed 9.7 g (Plate 6). It was buff, with numerous longitudinal blotches of purple-grey, purple, grey and russet, underlaid with spots and flecks of these colours. The longitudinal blotches formed a band about the larger end, and there were some orange fruit stains. The egg was smooth-surfaced, had a slight lustre or gloss, and both ends were rather bluntly rounded being more the oblong oval or elliptical of O'Connor (1985) in shape.

At 1245 on 18 January the egg weighed 9.1 g with no sign of pipping then or at 1300 on 21 January. At 0700 on 23 January the egg weighed 8.8 g and had 2 eruptions in the larger end. At 0730 on 24 January a 7.7 g hatchling was in the nest (Plate 8). It had a wing length of 10 mm, a total head length (THL) of 19.9 mm and a tarsus of 10.6 mm. It was naked with entirely dark grey-purple skin, paler on the abdomen, a mid-grey gape, off-white claws and a tiny white egg tooth (Plate 8). At 0815 on 27 January the naked nestling weighed 10.7 g with a chord wing length of 11.4, a THL of 21.8 and a tarsus of 11.6 mm. Its skin was black-purple, gape and claws dull off-white and its eyes still closed. At 0815 on 2 February the nest was empty and damaged, with no sign of young or parent bird about.

The nest was a shallow open cup of c. 170 mm outside diameter, and the egg cup only c. 55 mm deep, placed within the fork of 3 upright branches, with no sticks incorporated in it, and none of its material going around the outside of the branches. It was a fairly loose accumulation of numerous and varied fine epiphytic orchid stems, probably predominantly of *Glossorhyncha* spp, including some *Bulbophyllum*-like orchids, and very fine fern fronds. The upper outer nest rim was 'decorated' with fresh green 'comb-tooth' fern fronds up to 250 mm long, probably *Blechnum* or *Doodia* sp. The egg cup interior was sparsely lined with fine epiphytic orchid stems or tendrils and a few of other kinds of fine plant tendrils.

We watched the female's incubation activity for 19½ hours during 15 watches of 1–2 hours duration (av. 1 hr 18 min) during 3–20 January, i.e. when the egg was 3–20 days old. Watches began between 0900 and 1405, the mean being 1205. We have assumed the egg was laid during the morning of 1 January 1989, but it may have been laid the next day (see above). The female made an average of 4.1 (range = 2–6.4) visits to incubate per hour, spending a mean of 8′ 37″ (range = 4′ 48″ to 18′ 19″) incubating per visit, and 58.3% of our total observation time at the nest. Her absences averaged 3.9 per hour (range = 2.5–6.4), with a mean of 6′ 31″ (range = 4′ 12″ to 12′ 20″).

We observed the female brooding and feeding the nestling for 17½ hours during 6 watches of 1–4 hours (av. 2 h 55 min) during 24–30 January, i.e. when the nestling was 1–7 days old). Watches began between 0756 and 1350, (mean time 0945). The female made an average of 3.8 feeding/brooding visits per hour (range = 3.2–5.0), the brooding bouts having a mean of 6′ 30″ (range = 6′ 5″ to 8′ 31″). The mean time present at the nest was 7′ 5″, including time spent on the nest rim (4.4% of total time). An average of 3.5 feeding visits per hour (range = 0–4.7) were made, averaging 45″ in duration (range = 6–55″), before she subsequently brooded. On only 4 occasions, twice each on 27 and 30 January, did she feed the nestling and depart without brooding; and on 7 occasions she brooded without first feeding the nestling. The female brooded the nestling for 40.8% of our total observation time, the mean duration of brooding bouts being 6′ 30″ (range = 5′ 23″ to 8′ 1″). Her absences averaged 3.8 per hour with a mean duration of 8′ 42″ (range = 4′ 58″ to 10′ 36″).

While we could not conclusively prove our nesting bird was female, nor that only one bird visited the nest, we confidently assume this to be the case in view of knowledge of male dispersal and displays and breeding systems in this and other sexually dimorphic birds of paradise (Gilliard 1969, Cooper & Forshaw 1977, LeCroy 1981, Beehler & Pruett-Jones 1983, Frith 1985, Beehler 1987), and because of the timing of our bird's movements and because no conspecifics were seen near the nest. During the watch of 19 January, the female was seen to rise from incubating and chase off 3 different small passerines, probably honeyeaters, from within 1–2 m of her nest. We were unable to identify the composition of the nestling's meals.

Only one fully plumaged male was frequently and clearly audible to us from the nest site, a bird that was vocal throughout the study period 150–200 m distant and it is possible this male fertilized our nesting female.

On 26 December 1988, and c. 1 km from the above nest, we saw another female-plumaged King of Saxony Bird of Paradise feeding a fledgling of her own size and appearance save that its plumage was softer, more fluffy-looking.

Data indicative of breeding in this species are rare. Rand (1942) reported 5 breeding females being collected, 2 each in November and December and 1 in January, and on 13 April, Beach (1975) witnessed display and copulation. Diamond (1972) collected a young male in predominantly female plumage with "scattered velvet-black patches on the crown and nape and orange on the breast" and with enlarged testes on 24 June 1964. Notwithstanding this, Kwapena (1985) indicated a "mean breeding season" of September to May inclusive, basing this on observation of "juveniles, courtship displays and gonad conditions", having seen "juveniles in January, February and July".

The nest of the King of Saxony Bird of Paradise was very similar to, but shallower than, that of the Ribbon-tailed Astrapia *Astrapia mayeri* (Kwapena 1985, Frith & Frith in prep) being of similar materials; but its rim was 'decorated' with 'comb-toothed' ferns as used by the Crested Bird of Paradise *Cnemophilus macgregoriae* (Loke 1957, Frith & Frith in prep). It does not match a description given to Cooper (*in* Cooper & Forshaw 1977) by Mount Hagen residents with respect to materials and situation, although they did indicate a cup shape.

The egg of the King of Saxony Bird of Paradise is typical of those which are known of the subfamily Paradisaeinae (Gilliard 1969 plate 19., Cooper & Forshaw 1977, Bishop & Frith 1979, Frith 1985). The egg colour, pattern and size we describe herein, however, are not similar to those described to Cooper (*in* Cooper & Forshaw 1977) by local people at Mount Hagen.

Acknowledgements

We gratefully acknowledge support from Wildlife Conservation International, New York Zoological Society. Bob and Pam Bates of Trans Niugini Tours provided invaluable interest in, and support for, this study. For permission to study at Tari Gap we thank the Department of Environment and Conservation, and particularly Mr Karol Kisokau, of the Government of Papua New Guinea. Mike Pease kindly enabled us to photograph Tari Gap from the air. Bruce M. Beehler and William T. Cooper kindly commented helpfully on a draft of this contribution.

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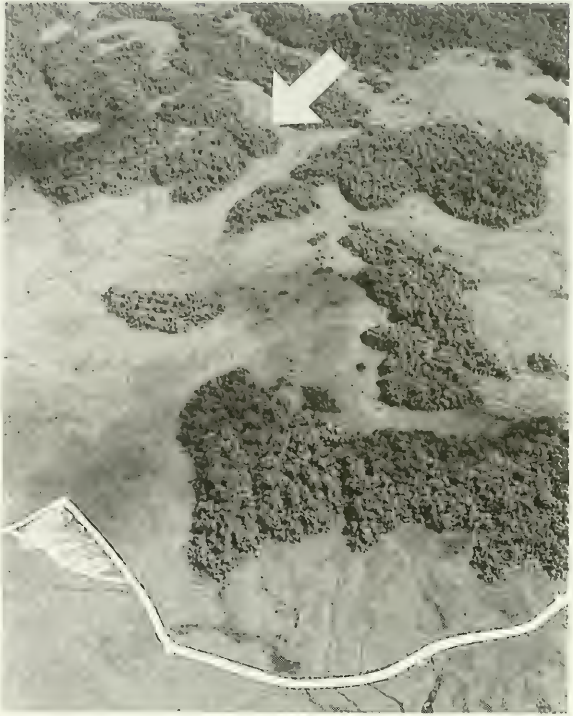

Plate 5. Aerial view of western Tari Gap, Southern Highlands Province, Papua New Guinea, with location of King of Saxony Bird of Paradise *Pteridophora alberti* nest site arrowed. The bottom of the photograph shows the road from Tari (to left) to Mt Hagen.

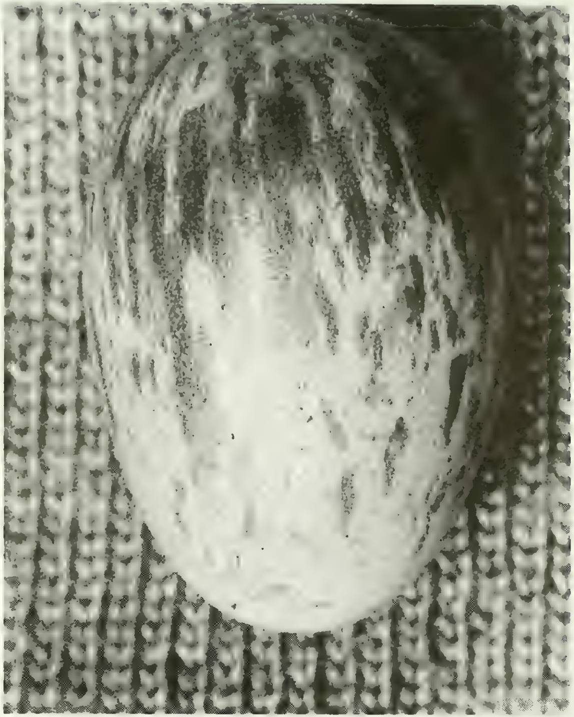

Plate 6. First known egg of King of Saxony Bird of Paradise *Pteridophora alberti*, measuring 33.6 × 23.5 mm.

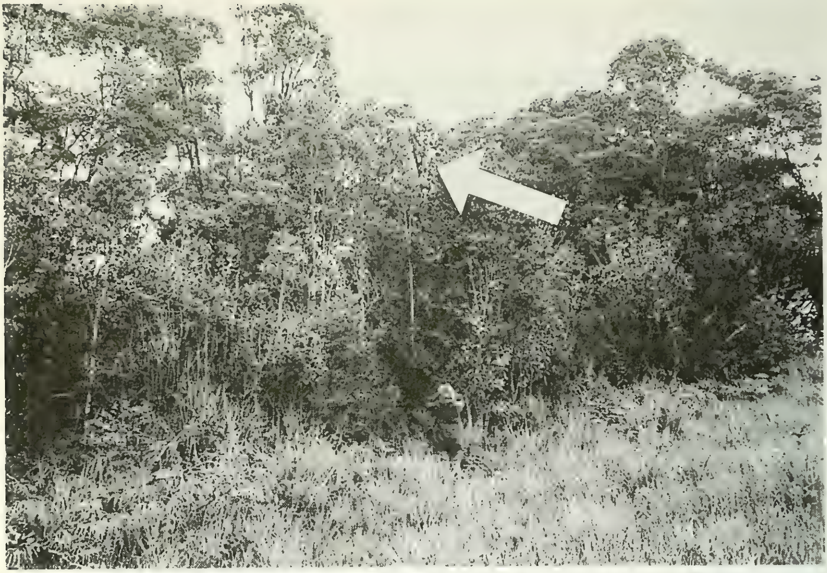

Plate 7. King of Saxony Bird of Paradise *Pteridophora alberti* nest site (arrowed dark spot in tree fork).

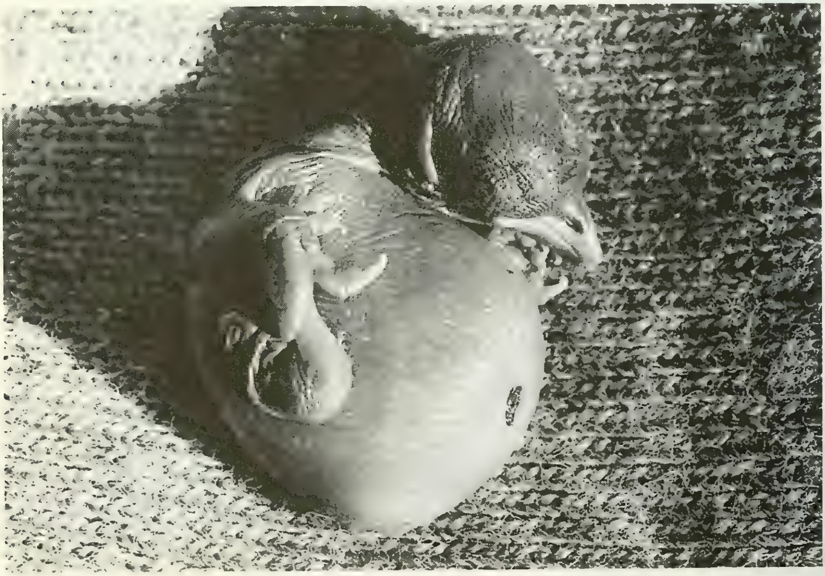

Plate 8. Nestling King of Saxony Bird of Paradise *Pteridophora alberti* less than 24 hours old.

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CONTENTS

Page

CLUB NOTES Annual General Meeting, Accounts, Chairman's Report, Meetings 113

MARCONDES-MACHADO, L. O. & MONTEIRO-FILHO, E. L. A. The Scarlet Ibis *Eudocimus ruber* in southeastern Brazil........ 123

SHELDON, R. C. & DUCKWORTH, J. W. Rediscovery of the Madagascar Serpent-Eagle *Eutriorchis astur* 126

CLANCEY, P. A. Size-variation and post-breeding movement in the Didric Cuckoo *Chrysococcyx caprius* (Boddaert) 130

CLANCEY, P. A. Comment on the geographical variation of the Malachite Kingfisher of the Afrotropics 137

SCHMITT, C. G. & SCHMITT, DONNA C. First records of the White-tailed Nightjar *Caprimulgus cayennensis* in Ecuador........ 139

OUELLET, H. Notes on the iris colour in females of two manakins (Pipridae)........ 140

TYE, A. & TYE, HILARY First description of the nest of the Golden-breasted Puffleg *Eriocnemis mosquera* 142

COLLINS, C. T. Intraspecific variation in the natal pterylosis of the Ochre-bellied Flycatcher *Myionectes (Pipromorpha) oleagneus* (Tyrannidae) 143

PEARMAN, M. Behaviour and vocalisations of an undescribed Canastero *Asthenes* sp. from Brazil........ 145

McALLAN, I. A. W. The Cochineal Creeper and the Fascinating Grosbeak: a re-examination of some names of John Latham .. 153

HOLYOAK, D. T. The nest and eggs of *Phylloscopus budongoensis* (Sylviinae) 159

FRITH, C. B. & FRITH, DAWN W. Discovery of the King of Saxony Bird of Paradise *Pteridophora alberti* nest, egg and nestling, with notes on parental care........ 160

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British Ornithologists' Club

Edited by
Dr J. F. MONK

Volume 110 No. 4 December 1990

FORTHCOMING MEETINGS

Tuesday, 22 January 1991. Bruce Pearson will speak on his expeditions in the **Central African Republic, Sudan, Kenya and Zambia.**

Mr Pearson is an artist with a particular interest in birds, and who produces much of his finished work in the field. Since 1980 he has made many trips to Africa, including a 3 month trek across West Africa in search of Palaearctic migrants, and visits to C.A.R., Sudan and East Africa.

Those wishing to attend should notify the Hon. Secretary by Tuesday 8 January 1991.*

Tuesday, 19 February 1991. Dr Martin Kelsey will speak on **"Wintering of Marsh Warblers".**

Dr Kelsey has studied Marsh Warblers in England and in Zambia. He was a member of the recent B.O.U. expedition to Colombia and is the Americas Programme Officer at the I.C.B.P.

Those wishing to attend should notify the Hon. Secretary by Tuesday 5 February 1991*.

Tuesday, 19 March 1991. Dr John Croxall will speak on **"The Decline of the Wandering Albatross".**

Dr Croxall is Head of the Birds and Seals Section of the British Antarctic Survey and has worked on several aspects of the biology of this albatross. He is a Vice-President of the B.O.U.

Those wishing to attend should notify the Hon. Secretary by Tuesday 5 March 1991*.

Tuesday, 9 April 1991. Professor C. H. Fry will speak on **"Alcedinidae".**

Tuesday, 21 May 1991. Dr D. H. Thomas will speak on **"Water, water everywhere—the Problems of Seabirds at Sea".**

Meetings are held in the Senior Common Room, Sherfield Building, Imperial College, London SW7 at 6.15 pm for 7 pm. A plan showing Imperial College will be sent to members on request.

*It is usually possible to take acceptances up to the weekend before a meeting, but members are asked to accept by 14 days beforehand as arrangements for the meeting have to be confirmed with Imperial College well in advance.

If you accept and subsequently find you are unable to attend please notify the Hon. Secretary, 1 Uppingham Road, Oakham, Rutland LE15 6JB (tel. 0572 722788) as soon as possible.

CHARITY COMMISSION—BRITISH ORNITHOLOGISTS' CLUB

The Charity Commissioners propose to make a Scheme for the B.O.C. Copies of the draft Scheme (ref: 279583 A/1–LA) may be obtained from them at St Alban's House, 57–60 Haymarket, London SW1Y 4QX. Objections and suggestions should be sent to them within one month from this *Bulletin*'s publication date.

AMBERLEY M. MOORE **12 December 1990**
Honorary Secretary, British Ornithologists' Club

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 110 No. 4 Published: 12 December 1990

The following is a résumé of the talk given to the Club on the occasion of its 800th meeting, 10 July 1990.

THE EEC AND NATURE CONSERVATION

by The Earl of Cranbrook

The Treaty of Rome contained no provisions for EEC involvement in environmental matters but, as time passed, the Member States have found themselves taking action with implications for the environment. Community environmental policy formally arose from a Council meeting in 1972, leading to the adoption, on 22 November 1973, of the first programme of action on the environment. A Council Resolution of 17 May 1977 approved the second action programme (for the period 1977–81) and a third (for 1982–86) and fourth (1987–92) have followed. The importance which the Community now attaches to environmental policy is reflected in the inclusion in the Single European Act (which amended the Treaty of Rome) of a chapter on the Environment.

Under Article 189 of the Treaty of Rome, the Community can legislate by means of Regulations, Directives, Decisions, Recommendations or Opinions. The Directive is overwhelmingly the most important tool; currently more than 100 environmental Directives are in operation. The requirements for progress reports, contained in Directives, are the main check on implementation, but the Commission also has a small staff of lawyers in DGXI in the department of "application of Community law". The head of this department, Mr Ludwig Krämer has said that legal action should be a last resort.

The one existing conservation instrument is the Birds Directive, adopted in 1979. This has resulted in measures including the cessation of spring shooting in Greece and France, and the protection of habitats in Spain, Scotland and other countries. In the United Kingdom the statutory framework of bird protection and conservation provided by the Wildlife and Countryside Act 1981 meets (and in many respects exceeds) the requirements of the Birds Directive. However there are problems. Most countries, including the United Kingdom, have failed to designate adequate numbers of Special Protection Areas (SPAs).

Since 1985, DGXI's "CORINE" research programme has assembled a substantial body of data on biotopes of major importance for nature conservation in the Community and has identified more than 5000 sites of "European" significance—for species or habitats or both. The Commission has also drawn up "internal instructions" aimed at screening Member State proposals for plans, programmes and projects under the Structural Funds. At the best, however, there are only 3 or 4 officials within the Commission to apply the instructions to hundreds of projects on a short timetable.

On 16 August 1988, the Commission proposed a draft Directive on the protection of natural and semi-natural habitats and of wild flora and fauna. The fundamental purpose of the Directive as at first published was to establish, by the year 2000 at the latest, a comprehensive network of protected areas aimed at ensuring the maintenance of threatened species and threatened types of habitats in all the regions of the Community. Sites designated under this Directive, together with those designated under the Birds Directive, would form a European network of classified special protection areas called "Natura 2000".

The House of Lords Select Committee (Subcommittee F), undertook an enquiry. The Committee was disturbed at the weight of evidence showing continuing losses of flora and fauna in countries throughout the Community, including the United Kingdom. Greater richness and variety exists in parts of France and in southern Member States such as Spain, Portugal, Italy and Greece.

The Committee believed that Member States, including the United Kingdom, now face a choice in the nature conservation sphere. Either they can elect to equip themselves with a genuinely European perspective, or they will have to accept that, on matters like nature protection, public pressures will encourage the Community to move in to fill the gap. The Committee was also persuaded that certain priorities for habitat and species protection need to be assessed from a Community, as well as from a national perspective. The Committee suggested that the Directive should create a mechanism for ensuring the protection of a selected range of specified regional habitats and scarce species of particular European significance. The initial Annexes accompanying the Directive should therefore be brief. Responsibility for adding to the lists subsequently could rest with a "Committee of adaptation". The Committee proposed that this new system of European designations should confer a degree of absolute protection.

On 16 January 1989, Mr Delors, the President of the Commission announced to the European Parliament that there was a need for better appreciation of the actual state of the environment, a better interchange of information between Member States and the Commission and a need for a structure to help the Commission discharge the tasks it now has under Community legislation. Subsequent measures have established a European Environmental Agency.

On 21 May 1990, the Commission proposed a regulation relating to nature conservation (under the acronym ACNAT). This authorises financial support from Community funds, for the maintenance or re-establishment of seriously threatened biotopes of endangered species or seriously threatened habitats. On the, as yet unfinalised, Habitats and Species Directive the Environment Council of 7 June 1990 reported that a review Annex V will soon be available.

The eight hundred and second meeting of the Club was held on Tuesday, 25 September 1990 in the Senior Common Room, Sherfield Building, Imperial College, South Kensington at 6.15 p.m. 35 members and 26 guests attended.

Members present were: R. E. F. PEAL (*Chairman*), M. A. ADCOCK, Miss H. BAKER, B. H. BECK, R. BEECROFT, K. BETTON, Mrs D. M. BRADLEY, A. P. E. CAIN, Cdr M. CASEMENT RN, I. COLLINS, P. CONDOR, J. H. ELGOOD, S. J. FARNSWORTH, Dr C. J. FEARE, G. D. FIELD, Revd T. W. GLADWIN, D. GRIFFIN, C. A. R. HELM, Dr M. KELSEY, R. KETTLE, Revd G. K. MCCULLOCH, Dr J. F. MONK, Mrs A. M. MOORE, R. MORGAN, Mrs M. MULLER, P. J. OLIVER, Dr R. P. PRYS-JONES, A. J. RANDALL, V. SAWLE, R. E. SHARLAND, P. SELLAR, N. H. F. STONE, D. TUTT, Dr A. TYE, C. A. WHEELER.

Guests present were: Dr M. R. W. RANDS (*Speaker*), Mrs B. ADCOCK, Miss S. ATTENBOROUGH, Miss Z. BALLARD, Dr J. BRADLEY, Dr C. CATCHPOLE, K. CUTTING, P. DAVIES, Miss J. EDRICH, Mrs F. M. FARNSWORTH, Mrs J. M. GLADWIN, Mrs S. GRIFFIN, M. J. D. HIRONS, N. JONES, Mrs C. KELSEY, Mrs N. LIDDELL, Mrs I. MCCULLOCH, Mrs D. MONK, P. J. MOORE, C. A. MULLER, B. O'BRIEN, M. OLIVER, Mrs J. OWENS, R. RANFT, D. K. THOMAS, P. WHITTINGTON.

After supper Dr Rands, who had just returned from a visit to the Seychelles, spoke on ornithology and conservation in those islands. It is hoped to publish an account of his address in a future issue of the *Bulletin*.

Notes on the birds of the Sierra de Unturán, southern Venezuela

by George F. Barrowclough & Patricia Escalante-Pliego

Received 8 February 1990

The Sierra de Unturán, located in the Departamento Río Negro, Territorio Federal Amazonas in extreme southern Venezuela, had not been explored prior to 1989. However, during the 1989 Tapirapecó expedition (de Bellard-Pietri 1989), we briefly observed and collected over 4 days, 19–22 March, at a single site, in the vicinity of a camp at 1200 m on an east–west running ridge on this low range (1°33′N, 65°14′W). Vegetation consisted of thick, dry scrub on the south-facing slope and tall, wet forest on the north-facing slope. The locality is between the well-known major tepuis of Cerro Duida to the northwest (200 km) and Cerro de la Neblina to the southwest (180 km). Specimens are in the collections of the American Museum of Natural History, New York, and the Universidad Central de Venezuela, Caracas. Here we report on records that provide a new locality for characteristic mid and upper elevational birds of the Venezuelan Pantepui (Mayr & Phelps 1967). Additional records of typical lowland species, species with broad elevational ranges, and Nearctic migrants are listed in an appendix.

Doubtless, more species will be recorded with more extensive work; nevertheless, some species that are normally abundant on the tepuis of Amazonas, e.g. *Campylopterus duidae, Turdus olivater* and *Atlapetes personatus,* were not found. It is possible that the limited area of habitat on this small range has been insufficient to support viable populations of the full complement of the tepui avifauna over evolutionary time. In addition, some of the habitat is restrictive; the dry scrub forest does not appear to be suitable for many of the typical Pantepui birds. Instead it contains other avian elements not routinely found at this elevation; e.g. we collected *Formicivora grisea, Elaenia ruficeps* and *Hylophilus brunneiceps* in this habitat. Equally, the range being relatively low and without the extensive flat top of the classic tepuis, such low to mid elevation taxa as *Phaethornis superciliosus* and *Xiphorhynchus pardalotus* were collected at our site.

Several of the species discussed below had enlarged gonads and showed evidence of moult. This was at the beginning of the rainy season in this part of Venezuela, and the data agree with some results from the Cerro de la Neblina expedition of 1984–1985. Breeding and subsequent moult of higher elevation birds appears to be concentrated between late November and February/March (Willard *et al.* in press), before the rains.

GRAY-CHINNED HERMIT *Phaethornis griseogularis*

One was seen in humid forest. Distributed in the northern Andes and locally in the Pantepui (Meyer de Schauensee 1966), this species is known from Cerro de la Neblina (e.g. Willard *et al.* in press) and in the highlands along the Brazil–Venezuela border above the Río Siapa (Phelps & Phelps 1958), but apparently not from Cerro Duida to the north.

GREEN-BELLIED HUMMINGBIRD *Amazilia viridigaster*

Found in the Colombian and Venezuelan Andes and locally in the Pantepui, this species was common at 1100 m. The male we collected was in body moult. Willard *et al.* (in press), found it common on Cerro de la Neblina at 750 m, but only occasional at 1400 m and higher. It also occurs to the north of Unturán at Cerro Duida.

BROWN-BREASTED ANTPITTA *Myrmothera simplex*

A Pantepui endemic known from all the major tepuis, this species was heard commonly in the moist forest.

RUFOUS-TAILED TYRANT *Knipolegus poecilurus*

Distributed in the upper tropical and subtropical zones of the central and northern Andes and locally in the Pantepui (Phelps & Phelps 1963). Two males were netted in dry scrub: one in fresh plumage, the other moulting its rectrices and both with enlarged gonads. Specimens are known from Cerro Duida and some of the more northerly tepuis in Amazonas; however, from Cerro de la Neblina there is only a single sight record.

RUFOUS-CROWNED ELAENIA *Elaenia ruficeps*

Distributed from central Brazil and eastern Colombia (Hilty & Brown 1986), locally through the Pantepui. Two specimens were netted in dry scrub: one, a female, had enlarged gonads; both had primary and general body moult. Not known from Cerro de la Neblina. This constitutes the southernmost record from Venezuela.

FLUTIST WREN *Microcerculus ustulatus*

A Pantepui endemic known from all the major tepuis; it was common in the understory of the moist forest. Three specimens included both a male and female with enlarged gonads; none was in moult.

BLACK-BILLED THRUSH *Turdus ignobilis*

Widely distributed at lower and mid-elevations in the Andes, southwestern Amazonia, and in the Pantepui (Phelps & Phelps 1963, Meyer de

Schauensee & Phelps 1978). It was very common in both dry and moist vegetation at 1200 m. Of 4 specimens, 2 were in moult; both sexes had enlarged gonads. There are only a few sight records from Cerro de la Neblina (Willard *et al.* in press), but the species has been collected at Cerro Duida.

BLUE-NAPED CHLOROPHONIA *Chlorophonia cyanea*

Generally distributed at mid-elevations in the Andes, southeastern Brazil, and in the Pantepui region (Ridgely & Tudor 1989), it was seen on several occasions. Known from Cerro Duida to the north (Phelps & Phelps 1963) and the Tapirapecó region to the south (Schwartz & Rivero 1979, Barrowclough & Escalante unpubl.), but surprisingly it has not been recorded from Cerro de la Neblina.

Acknowledgements

The Tapirapecó expedition was made possible through the Fundación para el Desarrollo de las Ciencias Físicas, Matemáticas y Naturales (FUDECI) of Venezuela. Expedition leader Eugenio de Bellard-Pietri, camp director Pedro Pérez-Ramírez, Charles W. Myers and the Venezuelan camp workers were especially helpful in making our work possible. Funds for our participation in the expedition were made available through a grant from the Phipps Foundation. We thank Jay Cole, Carol Townsend and Marcino Padamo for assistance in the field. David E. Willard offered useful comments on this manuscript.

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APPENDIX

Lowland, broad elevational and Nearctic migrant species also collected on the Sierra de Unturán, Venezuela, March 1989.

Phaethornis superciliosus
Xiphorhynchus pardalotus
Formicivora grisea
Xenopipo atronitens
Myiarchus tuberculifer
Catharus minimus
Hylophilus brunneiceps
Setophaga ruticilla
Piranga rubra
Tachyphonus phoenicius

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The type locality of the Barred Owl *Glaucidium capense*

by J. Vincent

Received 16 February 1990

In 1834 Dr (Sir) Andrew Smith described his *Noctua capensis* in the *South African Quarterly Journal*. Since he did not mention where his bird was collected, the type locality was regarded for many years as no more than 'South Africa'. W. L. Sclater recorded it thus in his 1930 *Systema Avium Aethiopicarum,* but in *Ann. Transv. Mus.* 18(3), 1936, Austin Roberts showed that Smith's bird was obtained in the eastern Cape Province. Accordingly that was the type locality in *A Check List of the Birds of South Africa* (Vincent 1952) and it was repeated in the SAOS 1980 Checklist.

In that 1936 reference, Roberts recorded extracts from some hitherto unpublished notes by Smith, found in 2 manuscript volumes owned by the Transvaal Museum. Therein Smith said that his owl came from "one of the forests of the eastern district of the Cape Colony" adding that it was "shot at Mr Biggar's early in the morning". Roberts commented that if it could be found where this Mr Alexander Biggar had lived, the place could be taken as the precise locality.

When first I read that remark I promised myself the task of solving the problem, if or when time and opportunity permitted what was likely to be a long search. Half a century has gone by, but now I think and trust that the answer has been found.

By lucky chance one of the books referred to in my delvings into Eastern Cape history was one with many entertaining stories of the area, entitled *Assegai Over the Hills* by F. C. Metrowich (1953). In it is described how in 1824 "a very interesting character", Alexander Biggar, was caught up in an incident in a Grahamstown street, when chatting with his friends there. This proved a first valuable clue that Biggar's place was unlikely to have been very far from Grahamstown.

Smith mentioned that a bird identical with his type specimen had been collected at the same locality in 1824. So because it is said that Smith did his Eastern Cape collecting before his westward journeys to the Orange River during 1827 to 1829, it seemed likely that the second bird was obtained between 1825 and 1827. Certainly it was collected before 1831, in which year Smith left for Natal. The problem now was to find where Biggar had lived throughout the important 6-year period.

This part of my search proved much easier than expected, thanks to the most kind and fortuitous help of Dr C. J. (Jack) Skead, of Port Elizabeth. He had all the needed details in his valuable notes on Eastern Cape farms of historical interest, and was generous enough to let me have them.

It appears that before leaving the Cape, Alexander Biggar lived on a small farm only 23 km WSW of Grahamstown, but that this property was granted to him only in 1832, and this was too late for my purpose. His previous home, the one lived in during the relevant years was at a place called The Baakens. This was on the farm Driefontein, which has been since subdivided into the farms Woodlands and Goodwoods, and I now restrict the type locality of *Glaucidium c. capense* to **17 km west of Bathurst, eastern Cape Province, at 33°32′S, 26°37′E.**

In *Durban Mus. Novit.* (1980) xii(12): 145, Clancey proposed the Uitenhage district of the eastern Cape as the type locality, this being the home of Krebs, who might have collected the owl. That suggestion, however, has now been overtaken by the fact that Smith noted, though he did not name, the farm where his bird was secured.

To close with a repeat of another piece of historical interest. Bathurst was the first administrative centre of the 1820 Settlers. Metrowich, in his book already mentioned, tells us that Alexander Biggar emigrated to the Cape from Scotland in 1820 in the *Weymouth*, bringing with him his wife Mary, of Stirling, and their family of 9 daughters and 2 sons. Alexander later took part in the battle of Blood River, but subsequently he and both his sons were killed fighting the Zulus.

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Description of a new subspecies of *Saltator aurantiirostris*, with comments on *S. maxillosus*

by José Maria Cardoso da Silva

Received 14 February 1990

The Golden-billed Saltator *Saltator aurantiirostris* is distributed over a large area of western South America, from Peru to Argentina (Meyer de Schauensee 1982). The first study of the geographic variation of this species was carried out by Chapman (1927), followed by that of Hellmayr (1938) and most recently by that of Paynter (1970). Paynter recognized only 2 subspecies in the southernmost part of the species' distribution: *S. a. aurantiirostris* Vieillot, from the south of Bolivia, north of Argentina (except Missiones), Paraguay, Brazil (Rio Grande do Sul and Mato Grosso do Sul) and Uruguay; and *S. a. nasica* Wetmore & Peters, from west-central Argentina (La Rioja, San Juan, Mendoza and western La Pampa). The latter differs from the nominate subspecies by having on average a slightly larger bill (Chapman 1927, Hellmayr 1938).

A total of 106 specimens collected within the geographic range of *S. a. aurantiirostris*, deposited at the American Museum of Natural History (AMNH), was analysed for the present study. This analysis resulted in the identification of a separate population of *S. aurantiirostris* that exhibits a combination of characteristics derived from both *S. a. aurantiirostris* and *S. maxillosus* Cabanis, from southeastern Brazil, in addition to unique plumage traits, justifying the designation of a new subspecies. Capitalized colour names with number indicate direct comparison with Smithe's Color Guide (1975, 1981).

Saltator aurantiirostris parkesi subsp. nov.

Holotype. Adult ♂ (AMNH 780694) from Estância Vizcacheras, Santa Elena, Entre Rios, Argentina. Collected by W. H. Partridge and P. S. Humphrey on 27 May 1961.

Paratypes. 3 adult ♂♂ (AMNH 780688, 780690, 780691) and one adult ♀ (AMNH 780728) from the type locality.

Diagnosis. Similar to *S. a. aurantiirostris* and *S. maxillosus* but easily distinguishable from them by the adults having Warm Buff (118) eyebrows instead of white.

Description of holotype. Forehead black; top of head Blackish Gray (82); malar and auricular regions black; long eyebrow, chin and throat Warm Buff (118); narrow black band across Smoke Gray (44) breast; belly, sides and flanks Raw Umber (123) × Cinnamon (123A); under tail coverts Cinnamon (123A); back Olive (30); dorsal surface of rectrices Blackish Neutral Gray (82), ventral surface Dark Neutral Gray (83).

Measurements of holotype (mm): Wing (flattened) 101.0; tail 97.5; exposed culmen 21.5; tarsus 29.0.

Distribution (see 'Specimens examined'). Known from Argentina: Entre Rios (Santa Elena and Gualeguay); Brazil: Rio Grande do Sul (Livramento, Passo da Conceição); Uruguay (Maldonado, Cerro dos Animais and Departamiento 33, Rio Olimar Chico).

Etymology. It is a pleasure to name this subspecies after Dr Kenneth C. Parkes of the Carnegie Museum, Pittsburgh, USA, for his contributions to the systematics of neotropical birds. Dr Parkes was the first to note the transitional character of the new taxon, through one of his "notes to posterity" placed in the drawers of the AMNH ornithological collection. These notes, well-known to museum workers at many institutions where the hand of Dr Parkes has passed, are invaluable guides to many unsolved avian systematic problems.

Variation. Little variation was observed in the plumage of 33 adult males from locations within the known distribution of the new subspecies. The black breast band is the most variable characteristic, and it may be wide (AMNH 780684) or faint (AMNH 780696), the latter, however, being a vestige of immature plumage. The adult females resemble adult males, but differ in having a Greenish Olive (49) back, breast band faint or absent, malar and auricular regions black mixed with olive, and wings significantly shorter ($t = 2.57$; $df = 60$; $p < 0.05$). Immature males and females are similar to the adult females, but differ in having the eyebrow white or white mixed with Warm Buff (118).

Specimens examined (all in AMNH). *S. a. parkesi*. ARGENTINA: Entre Rios, Santa Elena, Ea. Vizcacheras (20 ♂♂, 22 ♀♀, 1 ♂ imm., 1 ♀ imm.), Gualeguay, Ea. La Calera (10 ♂♂, 6 ♀♀, 6 ♂♂ imm., 1 ♀ imm.). BRAZIL: Rio Grande do Sul, Passo da Conceição (1 ♂, 1 ♀). URUGUAY: Maldonado, Cerro dos Animais (1 ♂); Depto. 33, Rio Olimar Chico (1 ♂). *S. a. parkesi* × *S. a. aurantiirostris*. ARGENTINA: Corrientes, San Luis de Palmar (5 ♂♂, 4 ♀♀), Concepcíon, Ea. Rincón de Luna (3 ♂♂, 1 ♀), Mercedes, Ea.

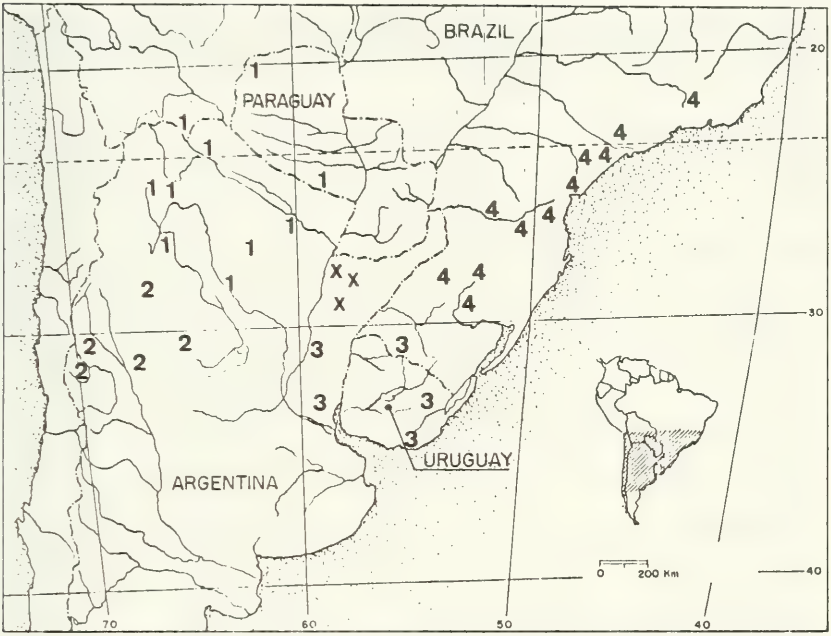

Figure 1. Distribution of *Saltator aurantiirostris*:— *S. a. aurantiirostris* (1); *S. a. nasica* (2); *S. a. parkesi* subsp. nov. (3); *S. a. parkesi* × *S. a. aurantiirostris* (X); *S. maxillosus* (4).

Rincón del Ombú (1 ♂, 1 ♀), La Soledad (2 ♂♂, 1 ♀). *S. a. aurantiirostris.* PARAGUAY: Chaco, Lichtenau (5 ♂♂); Tenente Enciso, Neuva Assuncion (1 ♂). ARGENTINA: Avia Terai (2 ♂♂), Mocovi (1 ♂); Salta Embarcacíon (1 ♂), Rosário de Lerma (1 ♂); Santiago del Estero, Lavalle (1 ♂, 1 ♀), Suncho Corral (1 ♀); Jujuy, Perico (1 ♀); Tucuman, Tápia (2 ♂♂). *S. maxillosus.* BRAZIL: Rio Grande do Sul, Santa Cruz (2 ♂♂), Iauí (1 ♀), Itatiba do Sul (1 ♂); Santa Catarina, Ouro Verde (1 ♂, 1 ♀); Paraná, Porto Almeida (3 ♂♂, 1 ♀), Roca Nova (1 ♂); Rio de Janeiro, Itatiaia, Macieiras (1 ♂, 3 ♀♀, 2 ♂♂ imm.).

Additional remarks. The new subspecies is clearly a transition between *S. a. aurantiirostris*, with which it intergrades to the north (Fig. 1). and *S. maxillosus*. In common with *S. a. aurantiirostris, S. a. parkesi* males exhibit a black breast band and black malar and auricular regions, while the eyebrow of both sexes extends back almost to the nape. *S. a. parkesi* is similar to *S. maxillosus* in the colouration of the underparts and the complete lack of white patches on the terminal portion of the outer rectrices.

On average, the wings and tail of *S. a. parkesi* are larger than those of *S. a. aurantiirostris* (see Table 1). In comparison with *S. maxillosus,* the females of the new subspecies have shorter wings and tail, while the males have a larger bill. *S. a. aurantiirostris* has shorter wings and tail than *S. maxillosus* (Table 1).

TABLE 1

Mean, ± standard deviation, (number of specimens) and results of Student's t-test comparing selected measurements (mm) of ♂ and ♀ *Saltator a. aurantiirostris, S. a. parkesi* subsp. nov. and *S. maxillosus*. See "Additional remarks" in text.

		aurantiirostris	*parkesi*	t-test
Wing (flattened)	♂	90.7 ± 2.2 (3)	97.0 ± 2.4 (29)	<0.001
	♀	92.2 ± 2.4 (14)	98.5 ± 2.2 (33)	<0.001
Tail	♂	90.6 ± 1.7 (3)	94.9 ± 2.7 (23)	<0.001
	♀	89.5 ± 2.7 (14)	95.3 ± 2.8 (28)	<0.05
Exposed culmen	♂	19.0 ± 0.5 (3)	20.4 ± 0.9 (29)	NS
	♀	19.5 ± 1.0 (14)	20.7 ± 1.4 (33)	NS
		aurantiirostris	*maxillosus*	
Wing (flattened)	♂	90.7 ± 2.2 (3)	99.7 ± 2.8 (6)	<0.001
	♀	92.2 ± 2.4 (14)	99.8 ± 3.4 (9)	<0.01
Tail	♂	90.6 ± 1.7 (3)	97.6 ± 3.5 (6)	<0.001
	♀	89.5 ± 2.7 (14)	97.2 ± 1.9 (7)	<0.01
Exposed culmen	♂	19.0 ± 0.5 (3)	20.3 ± 0.9 (6)	NS
	♀	19.5 ± 1.0 (14)	19.6 ± 0.9 (8)	NS
		parkesi	*maxillosus*	
Wing (flattened)	♂	97.0 ± 2.4 (29)	99.7 ± 2.8 (6)	NS
	♀	98.5 ± 2.2 (33)	99.8 ± 3.4 (9)	<0.05
Tail	♂	94.9 ± 2.7 (23)	97.6 ± 3.5 (6)	NS
	♀	95.3 ± 2.8 (28)	97.2 ± 1.9 (7)	<0.05
Exposed culmen	♂	20.4 ± 0.9 (29)	20.3 ± 0.9 (6)	<0.05
	♀	20.7 ± 1.4 (33)	19.6 ± 0.9 (8)	NS

Hellmayr (1938) recognized a strong affinity between *S. aurantiirostris* and *S. maxillosus*, a phylogenetic association which is now further strengthened by the recognition of the transitional form *S. a. parkesi*. This, however, in turn, would appear to question the taxonomic position of *S. maxillosus*.

Following Mayr's (1963) biological species concept (but see criticisms in Cracraft 1983, McKitrick & Zink 1988), the inclusion of *parkesi* in *S. aurantiirostris* is definitive, given the existence of an intergradation zone. There is no evidence of any intergradation between *S. a. parkesi* and *S. maxillosus*. In the possible contact zone of these 2 forms (the Brazilian state of Rio Grande do Sul), they are allopatric and exhibit considerable ecological differences (Belton 1985). *S. maxillosus* is found principally in the north of the state, where it prefers forests and forest margins, normally at relatively high elevations. *S. a. parkesi* occupies the south of the state and is common in open areas with few trees. This supports the present classification of *S. maxillosus* as a separate species. If further field studies reveal the existence of intermediate individuals, however unlikely this would seem at the present time, *S. maxillosus* should become a subspecies of *S. aurantiirostris*, the older name.

Acknowledgements

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A critique of the description of *Amazona auropalliata caribaea* Lousada, 1989

by Kenneth C. Parkes

Received 20 March 1990

Lousada (1989) describes a supposed subspecies of the Yellow-naped Parrot *Amazona auropalliata* from the Bay Islands of Honduras. His paper contains serious flaws, attributable to Mr Lousada's admitted inexperience in taxonomic studies. No criticism is intended of the Editor and the readers of Mr Lousada's manuscript, as most of the flaws are not detectable from a reading of the paper itself. I wrote to Mr Lousada (30 January 1990) about several of the points I shall be mentioning, and he has responded to these (5 February 1990). I present first some background material on this group of parrots that was not included in Lousada's paper as published.

SPECIES LIMITS

Most authors (Peters 1937, Monroe & Howell 1966, Monroe 1968, Forshaw 1978, Ridgely 1982) have considered *A. auropalliata* (and *A. oratrix* of Mexico and Belize) to be conspecific with *A. ochrocephala* of northern South America north to Panama (with what appears to be an outlying population in northern Honduras). Several of these authors have suggested tentatively that this complex might better be treated as 3 allospecies. The American Ornithologists' Union (1983) has adopted this latter treatment, with English names Yellow-headed Parrot (*A. oratrix*), Yellow-naped Parrot (*A. auropalliata*) and Yellow-crowned Parrot (*A. ochrocephala*). Lousada also adopted this concept, but his Table 1 is confusing: he lists "*A. oratrix*" as a binomial, followed by listings for "*A. o. belizensis*" and "*A. o. belizensis* (NW Honduras)", but there is no indication as to whether "*o.*" stands for *ochrocephala* or *oratrix*. In fact, *belizensis* Monroe & Howell belongs to the *oratrix* group, whereas records from the "NW Honduras" (=Sula Valley) pertain to members of the *ochrocephala* and *auropalliata* groups and thus cannot be assigned to *belizensis*. Lousada nowhere discusses *belizensis*, nor, despite describing its soft-part colours, does he list it among his "*Specimens examined*". In addition, he describes the soft-part colours of what he calls "*A. a. parvipes* (Mosquitia birds)", but he actually examined only photographs of one specimen, the holotype, from the Mosquitia region, so perhaps his use of the plural rests on close field observations.

THE SULA VALLEY, HONDURAS, SPECIMENS

In addition to sight records, there are 2 yellow-crowned (*ochrocephala*) specimens from the Sula Valley of northwestern Honduras, one at the Academy of Natural Sciences, Philadelphia (ANSP), and the other at the Museum of Zoology, Louisiana State University (LSU) (Monroe & Howell 1966, Monroe 1968). These are presumably the specimens allocated to "*A. o. belizensis* (NW Honduras)" by Lousada, although apparently not examined by him.

In addition to the 2 yellow-crowned specimens, there are also 2 museum skins of the yellow-naped (*auropalliata*) group from the Sula Valley. Monroe & Howell (1966) believed that the yellow-crowned (*ochrocephala*) birds represented the true resident population of the Sula Valley, and that, in the absence of other records, the 2 yellow-naped birds were wanderers or escaped cagebirds from the yellow-naped populations of eastern Honduras or the Bay Islands. Lousada, however, states (*in litt.*) that he has "two contacts who have seen flocks of 20+ yellow-naped birds in this region". Of the 2 yellow-naped skins, Carnegie Museum of Natural History (CM) holds one, a male from Chasniguas (CM 20448). The other, a female from Urraco, is in the collection of the Museum of Comparative Zoology, Harvard University (MCZ) (Peters 1927). Lousada states (*in litt.*) that he measured "the second Sula Valley specimen" himself, but does not mention the MCZ, and he is apparently referring to an ex-captive female yellow-naped bird, said to have come from Omoa, that he donated to CM. This would account for his having listed two Sula Valley specimens being in CM. Unfortunately this female was prepared in CM as a skeleton before its significance was realized. It will be mentioned again later.

"SPECIMENS EXAMINED"

There are 4 specimens of *A. auropalliata* from the Bay Islands in CM, but although listed under "*Specimens examined*" Lousada actually saw none of them. Instead, at his request, colour slides of these specimens were sent to him by Mr J. Loughlin, Collection Manager in the Section of Birds at this museum. Lousada also lists the holotype of *Amazona ochrocephala*

(= *auropalliata*) *parvipes* Monroe & Howell (Univ. California at Los Angeles (UCLA) no. 51465) under "*Specimens examined*" and in his diagnosis of *A. a.* "*caribaea*" he describes a difference in bill colour between the latter race and "the type of *A. a. parvipes*". Dr Howell has informed me that Lousada never handled the holotype of *parvipes*; his knowledge of its appearance was based on photographs supplied by Howell.

MEASUREMENT TABLE

Specimen measurements made by different workers may not agree, so it should be noted, though it was not stated, that the measurements of the 4 "*caribaea*" and the male from the Sula Valley were taken at CM by Mr Loughlin. Lousada mentions having examined a series (20+) of *A. a. auropalliata* at the British Museum (Natural History) (BMNH), but the measurements for 18 ♂♂ and 15 ♀♀ *auropalliata* in his Table 2 were not those of the BMNH series, but were, in fact, copied, without credit, from Monroe & Howell (1966), Lousada's visit to the BMNH having occurred before his correspondence with Dr Thomas R. Howell had persuaded him that measurements would be desirable (Lousada *in litt.*).

"DESCRIPTION OF HOLOTYPE"

Explaining how he describes the colours of such areas as the under wing coverts and undersides of the flight feathers that were invisible in the photograph supplied to him by Mr Loughlin, Lousada (*in litt.*) admitted that his description, rather than being of the holotype (CM No. 131584, which, incidentally, was collected in 1947, not 1948 as reported by Lousada), is actually a composite, based in large part on his handling of the 5 Isla Roatán specimens in the BMNH. It is impossible, therefore, to know whether the described colours were based on the slide of the holotype or the specimens at Tring.

A detailed description of a holotype is somewhat surprising in a paper describing a new subspecies as opposed to a species, especially as "*caribaea*" is only characterized as differing from *A. a. parvipes* in bill colour. Since this description contains many flaws, of which I have informed Mr Lousada, it is as well that the description is in fact superfluous.

AGE-RELATED CHANGES IN BILL COLOURS

Lousada describes (p. 234) certain supposedly age-related changes in bill colour in *A. a.* "*caribaea*", stating that "Any Medium Plumbeous (87) [of Smithe 1975] colouration on the mandibles may gradually decrease in area and change to ivory or Pale Horn (92)". Examination of the CM series reveals that the Pale Horn area, at least on the upper mandible, is an outer keratin layer that scales away, usually from the tip caudally, but also, in some, on the lateral edges. The layer below, revealed by the exfoliation of the Pale Horn layer, is grey, but itself becomes paler, turning to Pale Horn and eventually scaling away to reveal a fresh grey area. Thus the relationship of grey and Pale Horn areas of the bill seems to be time-related, but not necessarily age-related *per se*. An individual parrot will have a constantly shifting ratio between Pale Horn and grey areas of the bill through its lifetime, although Lousada's data indicate that the bills of *juveniles* are quite consistently dark.

THE STATUS OF "*CARIBAEA*"

Monroe & Howell (1966) described *Amazona ochrocephala* [=*auropalliata*] *parvipes* as the population of the Mosquitia region of northeastern Nicaragua and adjacent eastern Honduras, and also of the Bay Islands population now named "*caribaea*" by Lousada. They tentatively assigned the yellow-naped birds from the Sula Valley of northwestern Honduras to *parvipes*, although these were taken in a habitat quite different from the *Pinus caribaea* stands preferred by *parvipes* elsewhere. Monroe & Howell characterized *parvipes* as differing from *auropalliata* of the Pacific slope "in smaller size, notably in smaller feet; in the presence of red at the bend of the wing; and in the generally paler, less heavily pigmented bill".

Among the Caribbean populations of *A. auropalliata* (Mosquitia, Bay Islands, Sula Valley) there are no size differences, all being smaller than nominate *auropalliata* from the Pacific slope. Lousada (Table 2) accepts the Sula Valley population as referable to *parvipes*, as tentatively suggested by Monroe & Howell; however, in Table 1 he gives no soft-part colours for the Sula Valley population of *parvipes*, only for Mosquitia birds.

Lousada states that his new subspecies "differs from the type of *A. a. parvipes* . . ." in having a predominantly ivory coloured bill; but his Table 1 confines this difference to the lower mandible, described as mostly Pale Horn in *caribaea* and Blackish Neutral Gray in Mosquitia *parvipes*. However, with bill colour as the sole deciding criterion, the Sula Valley population cannot be assigned to *parvipes* on this basis. Fortunately the rhamphotheca is still present on the Omoa specimen donated to CM by Lousada (now CM skeleton no. S-12033). Its amount of pigmentation closely matches the bill of the more heavily pigmented of the two CM adult males of "*caribaea*", although the pale portions differ in actual colour in this recent specimen from those of the study skins, which are more than 40 years old. Furthermore, the bill of the CM Sula Valley study skin is even paler, with the colours of both mandibles inseparable from those of the series of "*caribaea*".

As mentioned earlier, Monroe & Howell characterized *parvipes* as having a "generally paler, less heavily pigmented bill" than Pacific *auropalliata*. Other than the 2 Sula Valley skins and the Bay Islands specimens, their series included 8 specimens from the Mosquitia region (1 Honduras, 7 Nicaragua). It would be remarkable indeed if Monroe & Howell failed to notice that the lower mandibles of the Mosquitia series were consistently and strikingly more heavily pigmented than those of the Bay Islands and Sula Valley birds.

At my request, Dr Howell examined the paratypical series of 7 *parvipes* at UCLA, noting the colours of the lower mandibles, the only alleged character separating *parvipes* from "*caribaea*". He reported (telephone conversation, 8 March 1990) that all except 3 of the specimens have relatively pale lower mandibles, as in the Bay Islands birds. In the other 3 the lower mandibles do indeed appear blackish. Each of these, however, exhibits shot-holes in the bill, and Dr Howell believes that the dark colour could have been caused by blood perfusing the bill after the shot damage. There are no such holes in the pale lower mandibles.

It is clear that in addition to the numerous infelicities in Lousada's paper, his supposed Bay Islands subspecies relies for differentiation on a single variable colour character that could be based on an artifact, namely the perfusion of blood in the bills of the holotype and some other specimens of *parvipes*. The Yellow-naped Parrots of the Bay Islands of Honduras are thus referrable to *Amazona auropalliata parvipes* Monroe & Howell, as originally described, with *A. a. caribaea* Lousada as a synonym.

Acknowledgements

Sebastian Lousada provided me with much information not included in his paper, and lent me the photograph of the holotype of *parvipes*. Dr Thomas R. Howell kindly examined the type series of that race and described their bills for me during a telephone conversation. He, Dr D. Scott Wood, and the Editor made useful suggestions on the organization and wording of this paper.

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Basileuterus flaveolus (Baird) in Guyana

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The main purpose of a stay on Dadanawa Ranch, Rupununi South Savannas, Guyana, between August and October 1989, was to compare the avifauna of these savannas with that of the Sipaliwini Savanna in southern Surinam (which we had studied in 1966 and 1972). In spite of their being no more than 300 km apart, we found that the avifaunae of the 2 savanna regions were remarkably different, a point that will not be further elaborated here.

The only real ornithological surprise of our stay at Dadanawa was the discovery that the Flavescent Warbler *Basileuterus flaveolus* is a common inhabitant of the bushes and riverine woodland along the Rupununi River. Hitherto, this monotypic warbler has been known from 2 widely-separated regions: it has a very wide distribution in central and southern Brazil (north to southern Pará and southeastern Amazonas), Paraguay and Bolivia; and also in extreme northeastern Colombia (Santander del Norte) and adjacent northwestern Venezuela, far from the main range. Dadanawa Ranch being almost exactly 1000 km from both parts of the range as hitherto known, the huge gap has now been halved; possibly further local populations, reducing it even more, remain to be discovered. In view of the many years of ornithological exploration that have been carried out in Guyana, it is surprising that *B. flaveolus* has been overlooked for so long. Perhaps, common as it is locally, it is not widely distributed.

B. flaveolus inhabits patches of tall scrub and riverine woodland, where it forages to a large extent on, or just above the ground. Here it is generally inconspicuous, until one learns its song, which is loud and characteristic. This consists of 2 parts, a higher introductory part, followed by 3–4 louder and lower notes, and may be described as follows: "*zeedlezeedle-zeedle-cháp-cháp-cháp-cháp*", or "*sit-sit-sit-sit-cháp-cháp-cháp-cháp*".

In the field, the identification of the species caused problems. In Guyana, the only books we had with us were Snyder (1966) and Meyer de Schauensee & Phelps (1978). Snyder, of course, was only useful in a negative way, to prove that our species was not yet known from Guyana. Meyer de Schauensee & Phelps state expressly, in italics, that *B. flaveolus* has a pale bill, which is apparently regarded as an important field-character. All birds seen and handled by us had entirely black bills and therefore could not, on the basis of the evidence just quoted, be *B. flaveolus*.

Back home, the following literature was consulted to learn more about the bill-colour: Todd (1929: 43): bill black (from label by Carriker); Meyer de Schauensee (1964: 341): bill dark and slender; Meyer de Schauensee (1970: 366): only species of this type with pale bill; Meyer de Schauensee & Phelps (1978: 324): *bill pale*; Hilty & Brown (1986: 585): *bill pale*; but Sick (1984: 670): bico preto.

As we did not regard the above opinions to be conclusive either way, and as *B. flaveolus* was not represented in the collections in Leiden, a letter was written to the American Museum of Natural History, New York, in which our problem was set out. From the reply, by Mr R. A. Sloss, Associate of the Bird Department, we cite: "All 77 specimens of *Basileuterus flaveolus* in our Main Series have black (or dark) bills. Those few specimens on which bill colour was recorded (less than 10%) indicated 'black'".

What remains unexplained is why Meyer de Schauensee, after having recorded the bill-colour correctly in his first book, changed so decidedly to the wrong colour in his later works, even italicizing the pale bill.

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The occurrence of the Grass Owl *Tyto capensis* and Richard's Pipit *Anthus novaeseelandiae* in the lowlands of New Guinea

by Neil Stronach

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Two species, the Grass Owl *Tyto capensis* and Richard's Pipit *Anthus novaeseelandiae*, not normally recorded from the lowlands of New Guinea, are reported here from the upper Ramu River valley of Morobe Province and from the Bensbach River of Western Province, Papua New Guinea (Fig. 1). In New Guinea, both species are known only from the mid-montane grasslands of the Central Highlands, but in their wide distribution elsewhere they are not generally restricted to montane habitats. Until recently, grasslands in New Guinea occupied 2 discrete zones (Henty 1982, Gillison 1983):— extensive anthropogenic grasslands that have existed in the highlands at 1500–2500 m since at least 4000 years BP (Powell 1982); and largely isolated from the highland grasslands, a number of lowland grasslands, some of which are anthropogenic, e.g. those in the valleys of the Markham and Ramu Rivers, while others are at least partly edaphic, e.g. those in the Transfly region of southern New Guinea.

Tyto capensis

On 24 November 1979, two Grass Owls were seen roosting on the ground in dense 1 m-high Kunai Grass *Imperata cylindrica* near sea level on the Bulla Plains near the Bensbach River (9°01′S, 141°11′E). They occupied crude forms in which were found several pellets, which contained the remains of *Sminthopsis rufigenus*, the common dasyurid (marsupial mouse) in the area. The birds were seen in good light at c. 3 m distance and several colour photographs were taken which assisted identification. The Bulla Plains occupy an area of c. 300 km^2 of low relief near sea level and consist largely of seasonally-inundated sedge-rich grassland on poor soils, seasonally inundated grassland on black soils and smaller areas of

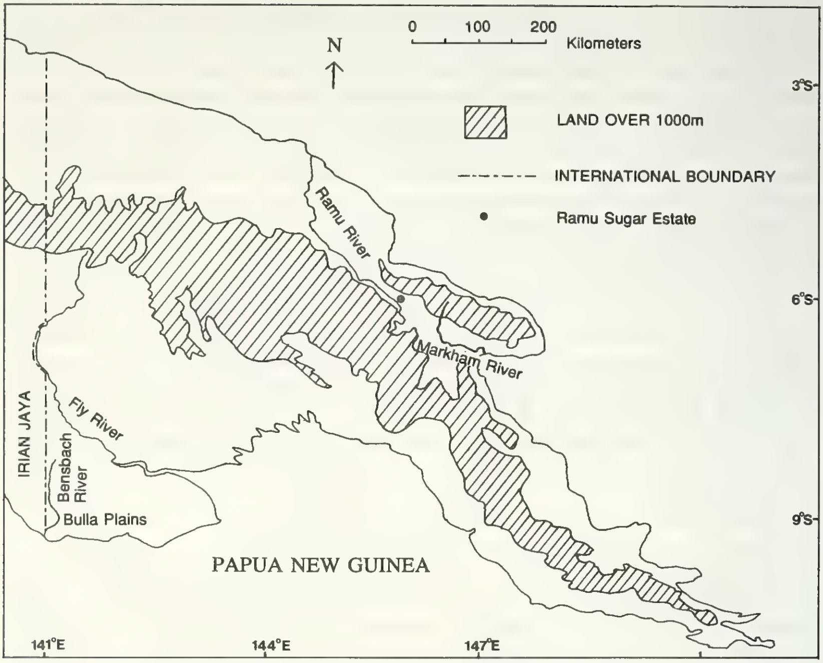
N
0 100 200
Kilometers
3°S
LAND OVER 1000m
INTERNATIONAL BOUNDARY
Ramu Sugar Estate
Ramu River
6°S
Markham River
IRIAN JAYA
Fly River
Bensbach River
Bulla Plains
9°S
PAPUA NEW GUINEA
141°E
144°E
147°E

Figure 1. Map of Papua New Guinea showing the locations of the Bulla Plains and the Ramu Sugar Estate. The approximate extent of land over 1000 m is also indicated.

dense *Imperata cylindrica* grassland on slightly higher ground which is less prone to flooding. There are also small relict areas of seasonal *Phragmites karkar* reedswamp, the distribution of which is considerably limited by heavy grazing of introduced Rusa Deer *Cervus timorensis*. Despite considerable travel through all 3 habitats between 1979 and 1982, no further records of grass owls were obtained from the area.

On 27 May 1981 a nest of Grass Owls containing 7 young was found in *Imperata cylindrica*/*Themeda australis* grassland on Ramu Sugar Estate (5°58′S, 145°53′E, c. 400 m alt) (Fig. 1). The young varied in size from medium downy young to almost fully feathered. Several freshly killed unidentified mice were present in the nest. The grassland appeared to be transitional in character between *Imperata cylindrica* grassland on relatively rich soils and *Themeda australis* grassland on degraded soils (Henty 1982). Both types of grassland are extensive in the Ramu River valley, the latter extending on to the slopes of the surrounding mountains.

Beehler (1978) gives no records for the Grass Owl from either lowland or highland grassland in Morobe Province, and it has been recorded previously in highland grassland only down to an altitude of c. 2500 m (Coates 1985); this contrasts with its habitat in Australia (Calaby 1970), where it occurs mainly in lowland grassland, and in southeast Asia (King *et al.* 1975), where it occurs below 4000 feet. Draffan *et al.* (1983) recorded

Grass Owls from the islands of the Torres Straits in 1978, not far to the south of the Bulla Plains. They presumed that these birds were members of an irrupting population originating in Australia and noted that they did not establish themselves permanently on the islands. Both the date and the location of the Bulla Plains records suggest that those birds may have had a similar origin, but the possibility remains that there is a small permanent populations in the Transfly. The grasslands of the Transfly region include the ranges of a number of Australian grassland species that are not found elsewhere in New Guinea, notably the Wedge-tailed Eagle *Aquila audax,* Australian Bustard *Ardeotis australis,* Brolga *Grus rubicundus* and Australian Magpie *Gymnorhina tibicen*. There is also a population of the Zitting Cisticola *Cisticola juncidis* on the Bulla Plains that may be an isolate of the Australian population. All these species breed successfully and there appears to be no obvious reason why the Grass Owl should not also do so.

The Grass Owls in the Ramu valley appear to be breeding successfully and may represent a resident population that has been overlooked. Alternatively, they may owe their origin to colonization from either Australia or the New Guinea highlands. Grassland connections through formerly forested land between the Ramu and Markham valleys and the grasslands of the highlands are increasing, so colonization of the lowlands by the montane population is not impossible.

Anthus novaezeelandiae

Between 26 and 31 May 1981 several Richard's Pipits were seen on Ramu Sugar Estate. The birds occupied an area of short grassland, maintained as a rough golf course by mowing. Singing Bushlarks *Mirafra javanica* were common in the same habitat. The birds were tame and observations were in good light down to a distance of 4 m, using 8 × 32 binoculars.

Peckover & Filewood (1976) point out that in New Guinea Richard's Pipit is apparently restricted to the mid-montane grasslands of the Central Highlands, at an altitude of 1200–2100 m. Beehler (1978) gives the species altitude range in Morobe Province as 1000–1700 m. This is in contrast to the rest of its wide range, where it is frequently found down to sea level. Beehler *et al*. (1986) mention "unconfirmed reports from Markham valley lowlands" and Coates (1985) states, without details, that it occurs in the New Guinea lowlands. Most of the derived grasslands of the Ramu and Markham valleys are dominated by relatively long grass species, notably *Imperata cylindrica, Saccharum* spp. and *Themeda australis* (Henty 1982, Gillison 1983). However, a number of land-use practices, particularly cattle grazing, have produced areas of relatively short grassland that appear to be ideal habitats for Richard's Pipit. Since the highland range of Richard's Pipit is not distant, and grassland is now partly continuous between the mid-montane and lowland habitats in northern Papua New Guinea, it would not be surprising if recent colonization has occurred. Recently, the Grey Shrike Thrush *Colluricincla harmonica* has colonized deforested areas in the Central Highlands and the Pied Chat *Saxicola caprata* has colonized the lowland grasslands around Port Moresby (Peckover & Filewood 1976, Beehler *et al*. 1986).

Acknowledgements

I am grateful to Chris Oakes for his hospitality during my visit to Ramu Sugar Estate, and to John West (cartographer), Booker Tate Ltd, for providing exact coordinates of the sugar plantation.

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The taxonomic status of *Phyllomyias reiseri*

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The tyrannulet *Phyllomyias reiseri* was described from a single male specimen collected in Piauí, northeastern Brazil (Hellmayr 1905). In 1927, Hellmayr considered *reiseri* to be a subspecies of *Xanthomyias virescens* of eastern Brazil along with *urichi* of northern Venezuela (Hellmayr 1927). Zimmer (1955) resurrected *reiseri* as a distinct species and reported new specimens from Paraguay. More recently, Traylor (1979, 1982) again returned *reiseri* to *virescens* as a subspecies, restricting it to Piauí. Traylor recognized it based only on wing length and, with the limited material available to him, did not feel that plumage characters consistently separated *reiseri* from *virescens*.

I recently discovered 4 additional specimens of *reiseri* in the Museu de Zoologia da Universidade de São Paulo (MZUSP). Two of these specimens were collected in July 1963 at Brasília (15°47′S, 51°11′W) by José Hidasi. The other 2 specimens, from Jaraguá (15°45′S, 49°20′W), Goiás and Sant'Ana do Paranaíba (19°40′S, 51°11′W), Mato Grosso do Sul, were previously reported by Pinto (1944) as *virescens* and accepted as such by Zimmer (1955). I compared these specimens with the 3 *reiseri* (2 from

TABLE 1
Measurements (mm) of *Phyllomyias* spp.

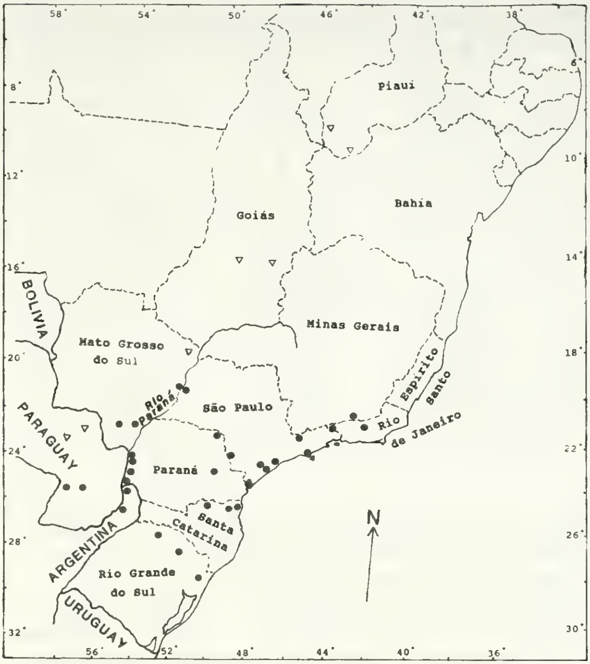
			Wing	**Tail**	**Tarsus**
reiseri		x̄	57.0	51.4	15.5
		s.d.	1.61	2.14	0.48
		range	54.0–59.0	48.2–54.2	15.1–16.3
		n	7	7	7
urichi		x̄	57.2	53.2	15.7
		s.d.	0.76	3.20	0.31
		range	56.5–58.0	49.6–55.8	15.4–16.0
		n	3	3	3
virescens	♂	x̄	62.0	58.7	16.3
		s.d.	1.99	2.98	0.47
		range	58.5–65.5	53.9–63.5	15.4–17.0
		n	32	33	26
	♀	x̄	59.6	54.9	16.4
		s.d.	2.09	2.68	0.29
		range	55.5–63.0	51.9–60.6	16.0–17.1
		n	43	41	33

Paraguay and one from Piauí) examined by Zimmer at the American Museum of Natural History (AMNH) and with series of *virescens* at AMNH, MZUSP and the Field Museum of Natural History.

As noted by Hellmayr and by Zimmer, *Phyllomyias reiseri* has several plumage and size characters that distinguish it from *virescens*. *P. reiseri* differs in plumage from *virescens* by: paler yellow underparts with less of an olive wash across the breast; brighter, yellower green upperparts; crown feathers tipped with grey (the crown of *virescens* is concolor with the back); whiter, less greenish-yellow wingbars; and a different face pattern. In general the face pattern of *virescens* is more prominent than that of *reiseri*. In *reiseri* the ear coverts are yellow, little, if at all, tipped with olive, while in *virescens* these coverts are tipped extensively with dusky or olive. The lores and cheeks of *reiseri* are yellowish-white, while in *virescens* these feathers are grizzled with grey.

The wing and tail of *reiseri* are notably shorter than in *virescens* (see Table 1), in which the males have significantly longer wings and tails than females. In *reiseri*, although I have seen only 5 sexed specimens, there is no indication of sexual size dimorphism. As a result, male *reiseri* barely overlap male *virescens* in wing and tail measurements. On the other hand, the overlap of *reiseri* with female *virescens* is substantial, although the means are significantly smaller in *reiseri*. Tarsal measurements also average smaller in *reiseri*, but overlap broadly with *virescens*.

None of the 78 specimens of *Phyllomyias virescens* I examined shows any approach to *reiseri* in plumage characters, although an occasional female overlaps in wing and tail measurements with *reiseri*. These small females, however, appear to be scattered throughout the range of *virescens*; there are 4 from a long series from Misiones, Argentina, one from Rio Grande do Sul, one from São Paulo and one from Campanario in Mato Grosso do Sul. Only the Mato Grosso do Sul specimen is from a locality where intergradation from *reiseri* might be a factor.


58°
54°
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28°
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32°
30°
56°
52°
48°
44°
40°
36°
Piaui
Bahia
Goiás
Minas Gerais
BOLIVIA
Mato Grosso do Sul
Rio Paraná
São Paulo
Espirito Santo
Rio de Janeiro
PARAGUAY
Paraná
Santa Catarina
N
ARGENTINA
Rio Grande do Sul
URUGUAY

Figure 1. Ranges of *Phyllomyias reiseri* and *P. virescens* in eastern Brazil and neighbouring countries. Open triangles: *P. reiseri*; closed circles: *P. virescens*. Only localities for examined specimens of *P. virescens* are included.

Phyllomyias virescens is an uncommon flycatcher in humid Atlantic forest (including the Rio Paraná drainage) up to c. 1000 m in elevation. The localities from which *reiseri* is known are all in the cerrado region, so it must occur either in scrub or, perhaps more likely, in gallery woodlands. In either circumstance, *reiseri* apparently occupies a different habitat from *virescens*.

Zimmer (1955) split *reiseri* because he had specimens from as far apart as Paraguay and Piauí, and Pinto's report of *virescens* in the intervening region split the known distribution of *reiseri*. Zimmer felt that this distributional anomaly along with the lack of intermediate specimens required that the 2 taxa be considered distinct species. With the re-identification of the published Pinto specimens as *reiseri*, the distributional pattern is simpler, the range of *reiseri* falling entirely to the north and west of that of *virescens* (Fig. 1). Nevertheless, in view of the several plumage and size differences, the lack of intermediate specimens and the differences in habitat suggested by the ranges of the 2 forms, I agree with Zimmer that *reiseri* is best treated as a species distinct from *virescens*.

The status of the Venezuelan taxon, *urichi*, remains less clear. This poorly known tyrannulet from the mountains of northeastern Venezuela (Meyer de Schauensee & Phelps 1978) resembles *reiseri* closely, sharing the grey tips to crown feathers, whiter wingbars and smaller size, although it is not as small as *reiseri* (Table 1). It would seem that it should be associated with *reiseri* rather than with *virescens*. Although this arrangement results in an odd biogeographic pattern, a similar range disjunction between northern Venezuela and the cerrado region of Brasil exists in *Basileuterus flaveolus*.

The songs of both *reiseri* and *urichi* are apparently unknown. Comparisons of their songs with those of *virescens* when they become available will help clarify the relationships within this group.

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Two new subspecies of *Formicivora serrana* (Hellmayr) from southeastern Brazil, and notes on the type locality of *Formicivora deluzae* Ménétriés

by L. P. Gonzaga & J. F. Pacheco

Received 25 April 1990

The Serra Antbird *Formicivora serrana* was described by Hellmayr (1929a: 377) on the basis of 8 specimens from Minas Gerais and Rio de Janeiro, Brazil, correcting an error he had made some years earlier (Hellmayr 1924) and followed by Snethlage (1927), that involved the misapplication of the names *F. deluzae* Ménétriés, 1835 and *F. nigricollis* Ménétriés, 1835 to the bird which was later given the name *serrana*.

Formicivora deluzae is known only from the type in the Leningrad Academy of Sciences, a female reported to have been collected (our translation) "not far from the Serra dos Órgãos in the lands of Mr Deluze, a Frenchman established near Rio de Janeiro" (Ménétriés 1835: 485). This specimen was considered to be "barely distinguishable from the female of *Neorhopias* [=*Formicivora*] *grisea grisea*" (Hellmayr 1929a), while Naumburg (1939), commenting on *F. deluzae*, wrote that "it is rather singular that the bird has never been found again in the vicinity of Rio de Janeiro, and this locality is likely to be wrong, since mistakes of this kind occur in Ménétriés' paper in one or two other cases". Hellmayr (*in* Naumburg 1939) supported this speculation, writing "I am nearly convinced the locality is wrong and *F. deluzae* merely [a] *grisea* female". Despite these opinions, and regardless of the validity of *deluzae*, the family Deluze indeed owned a farm (Fazenda Constância) at Teresópolis, 60 km northeast of Rio de Janeiro on the Serra dos Órgãos, in the early nineteenth century (cf. Ferrez 1970: 70), and we see no reason for this not being the correct type locality of the bird originally indicated by Ménétriés, whatever its identity. There is, also, at least one record (by voice) of *F. grisea* from Teresópolis, made by H. Sick (pers. comm. 1988) in late 1949, and further field work there should be able to confirm or otherwise the existence of *F. deluzae*. The only other known record of *F. grisea* in the state of Rio de Janeiro (R.J.) is from Macaé, on the northern part of its coast, in 1988 (J.F.P.). Pinto (1978) quotes *deluzae* as a subspecies of *F. grisea* and gives its range, without foundation, as "southern Brazil, on the Atlantic strip of the state of Rio de Janeiro (and possibly Espírito Santo)".

A ♂ specimen in the Museu Nacional do Rio de Janeiro (MNRJ 26540), collected by F. C. Novaes in the municipality of Cabo Frio (R.J.) on 27 March 1951 bears a label written "near *Formicivora grisea*". This led us initially to suppose that Cabo Frio could harbour a population of *F. deluzae*, but a comparison, kindly made by V. M. Loskot of colour slides of a female *Formicivora* specimen collected by ourselves in Cabo Frio with Ménétriés type of *F. deluzae*, dismissed that possibility. In addition, continued field work in the littoral and other parts of R.J. served to convince us that we were actually dealing with new populations of *F. serrana,* which demanded further comparative study of specimens deposited in the MNRJ and a re-evaluation of the taxonomy of the species. We conclude that it is necessary to recognize 3 subspecies of the Serra Antbird, 2 of them new. The following is a brief review of geographic variation in the species. The subspecies are arranged geographically here from north to south (Fig. 1). Capitalized colour names with numbers refer to Smithe (1975, 1981).

Formicivora serrana serrana

Neorhopias serrana Hellmayr, 1929, *Field Mus. Nat. Hist. Publ.,* Zool. Ser. 12(18): 377, in footnote (part, Minas Gerais and Espírito Santo, Brazil). Type locality: Sete Lagoas, Minas Gerais.

Diagnosis. Originally given by Hellmayr (1929a) in the first description of the species, distinguishing it from *F. m. melanogaster*: "upper parts mars brown (instead of brownish slate);tertials along outer web narrowly

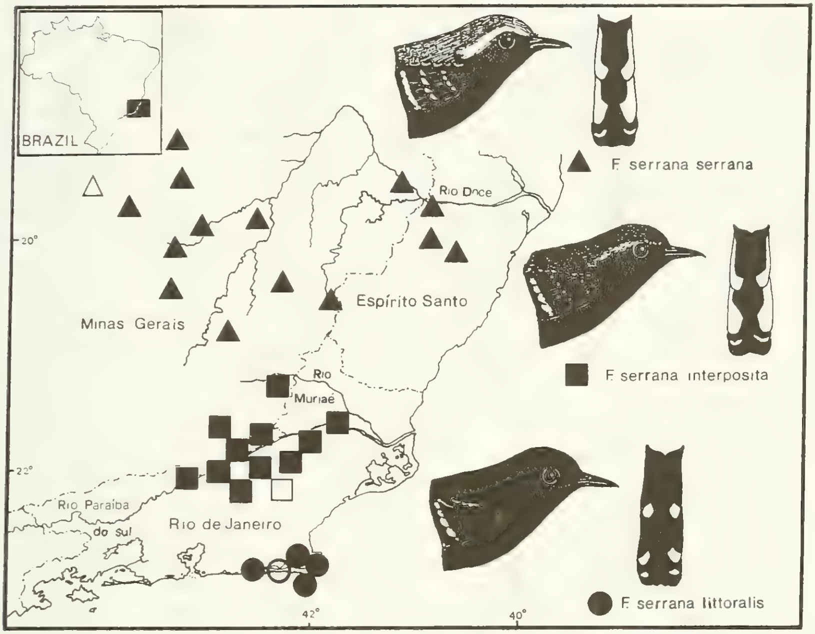
BRAZIL
20°
22°
42°
40°
Minas Gerais
Espírito Santo
Rio de Janeiro
Rio Doce
Rio Muriaé
Rio Paraíba do Sul
F. serrana serrana
F. serrana interposita
F. serrana littoralis

Figure 1. Distribution in southeastern Brazil of *Formicivora serrana,* including 2 new subspecies, *F. s. interposita* and *F. s. littoralis*. Open symbols indicate type localities. Heads and tails of adult males represented.

fringed with cinnamon-brown or russet (instead of broadly edged with white); [white] superciliaries much widened posteriorly; males with sides of breast and flanks smoke grayish, the latter sometimes suffused with whitish or buffy brown; female underneath deeper buff; bill much stronger and stouter".

Females of all presently proposed subspecies are virtually identical, denoting lack of geographical heterogynism (*sensu* Hellmayr 1929b) in the species.

Range. Up to 1000 m in serras of Minas Gerais: rio Bacalhau, Lagoa Santa, Sete Lagoas, Vargem Alegre, rio Gualaxo, rio Matipó, rio Sacramento, serra do Caparaó, Resplendor, rio Piracicaba, rio Doce, Fazenda Boa Esperança (Pinto 1952), Conceição do Mato Dentro (E. Willis and Y. Oniki), Santa Bárbara (A. Brandt), Viçosa (Monteiro *et al*, 1983), serra do Caraça (Carnevalli 1980); and in adjacent Espírito Santo: Baixo Guandu (Snethlage 1927), Jatiboca and Santa Teresa (H. Sick).

Formicivora serrana interposita subsp. nov.

Neorhopias serrana Hellmayr, 1929, *Field Mus. Nat. Hist. Pub.,* Zool. Ser. 12(18): 377, in footnote (part, "Aldea da Pedra" (=Itaocara) and Cantagalo, Rio de Janeiro, Brazil).

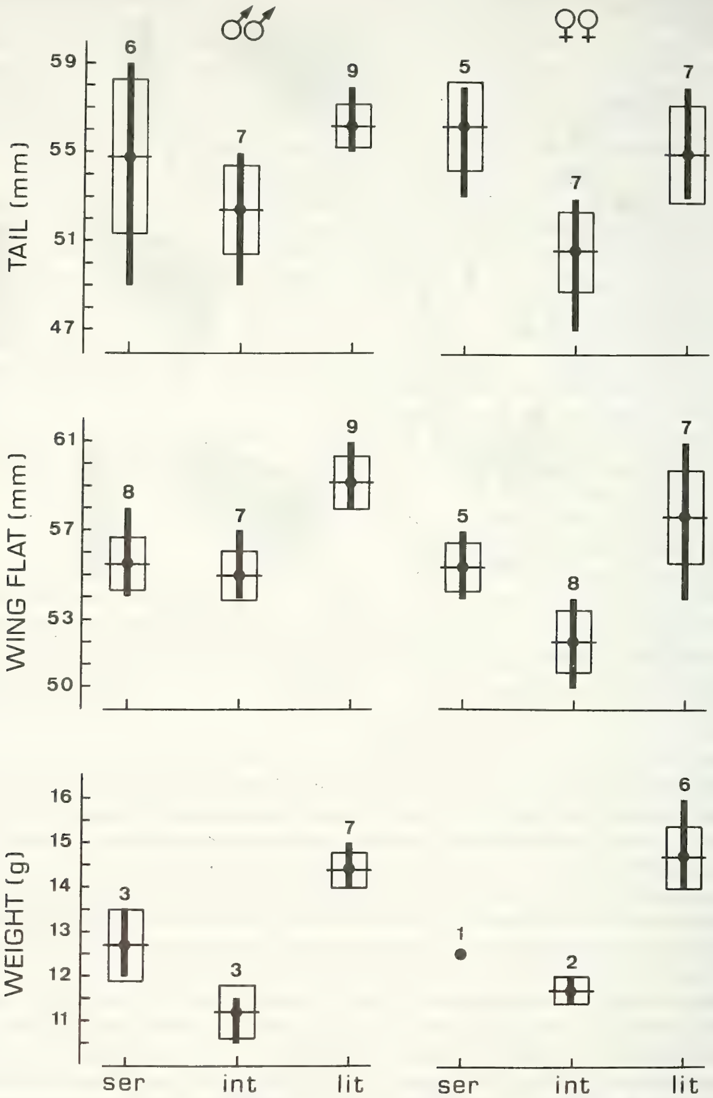

Figure 2. Measurements and weights of *Formicivora serrana* subspecies: ser = *F. s. serrana*; int = *F. s. interposita*; lit = *F. s. littoralis*. The horizontal line represents the mean, the vertical line the range, and the rectangle one standard deviation on each side of the mean. Numbers above ranges are sample sizes.

Holotype. Museu Nacional do Rio de Janeiro No. 36750. Active adult ♂ (gonads 6 mm, skull ossified) from Fazenda São Geraldo (22°06′15″S, 42°14′03″W), Trajano de Morais, Rio de Janeiro, Brazil, elevation c. 600 m; collected 21 Nov 1987 by L. P. Gonzaga & J. F. Pacheco.

Diagnosis. Slightly smaller than both *F. s. serrana* and *F. s. littoralis* (described below; see Fig. 2). Adult ♂♂ much darker than nominate *serrana* ♂♂, being Sepia (119) to Vandyke Brown (221) on the upperparts; superciliaries reduced to narrow, faulty white lines, wider on immatures; lesser and middle wing-coverts with diminutive white tips; flanks with less extensive greyish-white.

Range. Up to 700 m in the lower valley of the rio Paraíba do Sul and the Muriaé river, in R.J. and adjacent Minas Gerais at Itaocara, Cantagalo (Hellmayr 1929a), Muriaé (E. Snethlage), Volta Grande (C. Lako), Monte Verde, Santa Maria Madalena, Sumidouro, Sapucaia, Trajano de Morais, Aventureiro, Além Paraíba and Carmo (J.F.P.).

Discussion. Birds from "Aldea da Pedra" (= Itaocara) and Cantagalo, in the rio Paraíba do Sul valley, included by Hellmayr (1929a) in the range of *F. serrana*, must in fact belong to *F. s. interposita*. No ♂ specimen from the rio Paraíba do Sul valley was available to Hellmayr at the time of his description of the species, which must have accounted for him not recognizing the distinctness of these populations. N. Krabbe kindly compared for us colour slides of a ♀ specimen from Trajano de Morais with Hellmayr's female paratype in the Copenhagen Museum from "Aldea da Pedra" and found them "to be a perfect match" (*in litt*. 1988).

Of 3 ♂♂ from Muriaé, one (MNRJ 16982), from Fazenda Barra Alegre, approaches nominate *serrana* in colour of the upperparts, while the other 2 (MNRJ 16979 and 16986), from Fazenda Nova Aurora, are near matches for specimens of *interposita* from Trajano de Morais. When more specimens are available from the Muriaé/Viçosa region, they may be found to represent a transitional population between these subspecies.

Etymology. Latin *interposita*, interposed; referring to the intermediate position of the range of this subspecies, between *F. s. serrana* and *F. s. littoralis*.

Formicivora serrana littoralis subsp. nov.

Holotype. Museu Nacional do Rio de Janeiro No. 36751. Active adult ♂ (gonads 4 and 7 mm, skull ossified) from Maçambaba beach (22°55′45″S, 42°13′35″W), Arraial do Cabo, Rio de Janeiro, Brazil, near sea level; collected 29 Oct 1989 by L. P. Gonzaga & J. F. Pacheco.

Diagnosis. Slightly larger than both nominate *serrana* and *interposita* (Fig. 2); white on the tail restricted to the tips of the rectrices. Adult ♂♂ similar to *interposita* ♂♂ in dark colouration of the upperparts and flanks but lacking white superciliaries; white tips of lesser and middle wing-coverts diminutive or lacking.

Range. Confined to restinga and related vegetation along the coast in the municipalities of Cabo Frio, São Pedro da Aldeia, Arraial do Cabo, Araruama and Saquarema, and offshore islands (ilha Comprida, ilha de Cabo Frio), in R.J. Its apparent absence farther inland and north of Peró dunes (22°50′S), Cabo Frio, is attested by field work in several other localities, but its range spreads from Arraial do Cabo westwards through the Maçambaba region to Jaconé beach (42°40′W) in the municipality of Saquarema. It was not found, despite intensive search, farther west in the Maricá region in apparently suitable habitat.

Discussion. This subspecies appears to represent an isolated marginal relict at the southern extremity of a formerly continuous range of the species, since a distinct clinal variation in colour is evident between the 3 subspecies recognized here.

Field work showed that voices of birds from the coast, the rio Paraíba do Sul valley and Minas Gerais were virtually the same, and that playback of the song recorded in Cabo Frio elicited response by birds in Trajano de Morais, the type locality of *F. s. interposita*. Having also in mind the similarity of females, we provisionally prefer to give *littoralis* subspecific status alongside *interposita* and *serrana,* although its present geographical isolation along with the quite distinct morphological features of the ♂♂ and habitat could well be taken into account in allowing *littoralis* specific status.

Etymology. Latin *littoralis,* littoral; referring to the range of the subspecies, restricted to a small number of coastal localities.

Additional remarks

Like others of their genus, Serra Antbirds are relatively common inhabitants of shrubby vegetation, where they keep low in the foliage, foraging on arthropods mainly to 1–2 m from the ground. Another species observed at both *F. s. interposita* and *F. s. littoralis* type localities was the southeastern Brazilian endemic Hangnest Tody-Tyrant *Hemitriccus* (=*Idioptilon*) *nidipendulus,* which is one of the commonest birds in the restinga.

Response from play-back of *F. serrana* vocalizations was usually strong and enabled us to collect several individuals of both sexes, including an immature male *littoralis* on 19 January 1990, which showed no gonadal enlargement and only partial ossification of the skull. This bird's plumage looked remarkably like that of *F. s. serrana* adult males. Like all adults that responded to play-back, it approached the sound source and sang, but seldom left thickets, being reluctant to cross even trail-sized openings. The male's song is a series of about 4 "*chop*" notes per second. While singing, the bird perches upright on a twig, bobbing the tail, which is held slightly spread, following the rhythm of the emission. Other calls, uttered by both males and females, include a loud, sharp "*kee-ip*" repeated every 1–4 seconds, or a series of 2–4 such notes, associated at times with a short rattle, and a series of about 2–20 "*yeah*" notes ascending in pitch and slowing slightly. The latter call was often emitted in response to play-back or other disturbance.

The discovery of *F. s. littoralis* extends the known range of *F. serrana* down to sea level, where it is seemingly restricted to bromeliad/cactus-rich restinga scrub growing on sand bars and other scrub vegetation on coastal hillsides. No other bird is known to show a similar pattern of distribution in southeastern Brazil (Fig. 1). *F. s. littoralis* is also the only bird which may be considered typical for the restinga. In this habitat, we found it to occur at quite high densities over a relatively large area in the Maçambaba region. On the other hand, though the very distinct littoral population can tell us more about the ecology and origins of the restinga, real estate onslaught in the region raises serious questions about its continued existence there.

Specimens examined

F. s. serrana (13). MINAS GERAIS: Fazenda Taveira, Mariana (4); ESPÍRITO SANTO: Fazenda da Serra, Baixo Guandu (4), Santa Teresa (2), Jatiboca (3).

F. s. interposita (15). MINAS GERAIS: Fazenda Nova Aurora, Muriaé (4), Fazenda Barra Alegre, Muriaé (3), Fazenda Pombal, Volta Grande (3). RIO DE JANEIRO: Fazenda São Geraldo, Trajano de Morais (5) (including type).

F. s. littoralis (18). RIO DE JANEIRO: praia da Concha, Cabo Frio (5), ilha de Cabo Frio (4), ilha Comprida (1), Arraial do Cabo (3), restinga da Maçambaba (5) (including type).

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Observations of Palaearctic migrants rare to Ghana

by A. Hedenström, S. Bensch, D. Hasselquist & U. Ottosson

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Grimes (1987) has provided a thorough and useful summary of the ornithology of Ghana and, in particular, gives details of the occurrence of Palaearctic birds wintering there. However, most of the information refers to southern Ghana and we present here data obtained in the north, including details of 4 Palaearctic species new to Ghana. We visited northern Ghana from 20 Oct–18 Dec 1987 and netted birds at an old dried up river bed at Tono, near Navrongo (10°51′N,01°03′W), where there is a large irrigation project. We also made regular censuses (25) along a line transect containing 23 acacia trees (*Acacia albida*) in order to monitor species that occurred outside the habitat where the netting took place. Details of our moult studies are given elsewhere (Bensch *et al*. in press). In addition, we also visited the following locations in southern Ghana: Panbros saltpans (8 Oct 1987), Elmina saltpans, Winneba and Muni lagoons (12 Oct 1987), Bia National Park (28 Dec 1987–5 Jan 1988) and Sakumo lagoon (8 Jan 1988). Some observations made during a reconaissance trip (26 Nov 1985–14 Jan 1986) are also included.

Table 1 gives the ringing totals of 20 Palaearctic migrant species, and the numbers encountered during our line transects are presented in Table 2. Species worth special comments are given below. ("Grimes" = Grimes 1987; * = first published record for Ghana.)

BITTERN *Botaurus stellaris*

One at Tono 12 Dec 1987. Only once previously recorded in Ghana (Grimes).

AVOCET *Recurvirostra avosetta*

At Sakumo lagoon near Tema, c. 95 on 8 Jan 1988. Grimes gives only 3 records, but it is now regular on lagoons along the coast (D. Daramani).

BLACK-TAILED GODWIT *Limosa limosa*

In the Tono area: 3 on 17 Nov, 1 on 13 Dec and 20 on 14 Dec. At Sakumo lagoon c. 150 on 8 Jan 1988. In the north only previously recorded at Vea dam (Grimes).

*PECTORAL SANDPIPER *Calidris melanotos*

A juvenile bird at Sakumo lagoon, 8 Jan 1988. It was identified at close range (20 m) feeding in a mud flat along the shore, by its heavily streaked breast sharply contrasting with the white belly, a short and slightly decurved bill, greenish legs, and in size almost twice that of Little Stints *Calidris minuta* feeding nearby. This is the first record of this species in West Africa; Urban *et al*. (1986) gives African records only from Morocco (4), Libya (1), Kenya (2), Zambia (2), Zimbabwe (3), Botswana (3), Namibia (1) and South Africa (10).

TABLE 1
Numbers of Palaearctic migrants ringed at Tono, northern Ghana, between 28 October and 18 December 1987

	Oct	**November**			**December**		
	28–31	**1–10**	**11–20**	**21–30**	**1–10**	**11–18**	**Total**
Tringa glareola				1			1
Actitis hypoleucos						1	1
Gallinago gallinago				1			1
Luscinia svecica		7	6	4	12	7	36
Luscinia megarhynchos	2						2
Phoenicurus phoenicurus		2					2
Saxicola rubetra		2	4	1			7
Locustella luscinioides		1	3	2	9	1	16
Locustella naevia			1	2		1	4
Acrocephalus schoenobaenus	5	20	39	23	32	32	151
Acrocephalus paludicola			1				1
Acrocephalus scirpaceus	1	1	5	7	8	10	32
Acrocephalus arundinaceus	1	4	2	12	10	1	30
Hippolais polyglotta	2	4	5	2	3		16
Hippolais pallida	1	2	3	2	1	2	11
Sylvia communis		1	2	4	8	7	22
Sylvia borin		2					2
Phylloscopus collybita				1		1	2
Phylloscopus trochilus		12	9				21
Lanius senator		1	1		3	3	8
							366

TABLE 2
Number of Palaearctic migrants encountered during point count transects at Navrongo, northern Ghana, between 23 October and 16 December 1987

	October						**November**											**December**						
	23	**24**	**25**	**27**	**30**	**31**	**2**	**4**	**7**	**9**	**11**	**15**	**17**	**20**	**22**	**27**	**30**	**1**	**4**	**6**	**8**	**10**	**13**	**16**
Phoenicurus phoenicurus							1					2												
Luscinia megarhynchos									1															
Hippolais polyglotta		1			3	1		1				1		1	1									
Hippolais pallida							3	3	1	2	1	3	1		3	4	2	1	3	2	1		2	5
Sylvia communis		1	1	1		2		1			1			1	1	1	1		1	3		2	1	2
Sylvia borin	1							1																
Phylloscopus bonelli																	2		5	9	6	9	3	2
Phylloscopus sibilatrix	1		1	2	1	2	4		1	1	3	1	2	2	3		6	1						
Phylloscopus collybita																	1							
Phylloscopus trochilus	26	9	19	27	9	20	14	6	4	1	4	4	2	1	1									
Ficedula hypoleuca	6	1			2					1	2													

LESSER BLACK-BACKED GULL *Larus fuscus*

In addition to many coastal observations, we recorded singles at Tono on 28 Oct and 3 Nov 1987. Grimes gives only one previous inland record.

TURTLE DOVE *Streptopelia turtur*

In the Tono area: 23 on 24 Nov, 13 on 3 Dec, 1 on 6 Dec, 1 on 7 Dec, 2 on 10 Dec, 1 on 12 Dec and 9 on 13 Dec 1987. Grimes expected concentration would be found in the north due to increase in rice cultivation.

WRYNECK *Jynx torquilla*

At Navrongo-Tono: singles on 29 Dec 1985, 5 Nov, 30 Nov, 3 Dec and 10 Dec 1987. Considered rare by Grimes, but probably overlooked.

HOUSE MARTIN *Delichon urbica*

Regularly in the Tono area from 21 Oct to 18 Dec 1987. The largest flock, c. 1500, was seen over a fire on 9 Nov, an unusually large number (cf. Grimes).

TAWNY PIPIT *Anthus campestris*

One on a grass lawn in a forest clearing at Bia on 29 Dec 1987. Less than 10 records reported by Grimes.

BLUETHROAT *Luscinia svecica cyanecula*

Netted regularly at Tono, with a possible increase in abundance early Dec (Table 1). Adult males were identified as *cyanecula* by their white breast spot.

***AQUATIC WARBLER** *Acrocephalus paludicola*

On 15 Nov 1987 we captured a juvenile in fresh plumage, indicating a rapid moult just after arrival in the winter quarters (Bensch *et al.* in press). Recorded south of the Sahara previously only from the inundation zone of the Niger (Moreau 1972).

SAVI'S WARBLER *Locustella luscinioides*

One or two at Tono 27–29 Dec 1985. In 1987 fairly abundant at the netting site at Tono, where 16 where captured (Table 1). From 5 Dec to 18 Dec, up to 5 were singing. Previously only recorded at Vea dam (Walsh & Grimes 1981, Grimes).

***GRASSHOPPER WARBLER** *Locustella naevia*

One was captured at Tono 28 Dec 1985 and 4 more there in 1987 (Table 1). We found evidence for a complete winter moult in this species (Bensch *et al.* in press). The first record for Ghana.

CHIFFCHAFF *Phylloscopus collybita*

Two were captured (Table 1) and one was recorded (30 Nov 1987) during the transect counts (Table 2). Only very few records for Ghana, but is probably overlooked (Grimes).

***BONELLI'S WARBLER** *Phylloscopus bonelli*

First recorded on 30 Nov 1987, then regularly (max count 9) during the transect counts until 16 Dec (Table 2). Also one was singing on 7 Dec and 10 Dec, 4 km south of Navrongo. These are the first records in Ghana.

TABLE 3
Recoveries of birds ringed at Tono (10°51'N,01°03'W), northern Ghana and of ringed birds at Tono

Species	**Age** **Sex**	**Where ringed** **Date**	**Where recovered** **Date**
Luscinia svecica cyanecula	1st yr ♂	Tono 7.xii.87	Bouches-du-Rhone (43°18'N,05°24'E), **France** 25.iii.88
Acrocephalus schoenobaenus	1st yr	Tono 5.xii.87	Kirrasanta, **Finland** (61°35'N,21°32E') 6.vii.88 23.v.89
	1st yr	Guernsey (49°30'N,02°32'W) 26.viii.87	Tono seen 7.xi.87 caught 8.xi.87 seen up to 17.xii.87
	1st yr	Tono 27.xii.85	Tono, where ringed 1.xii.87
Acrocephalus arundinaceus	1st yr	Tono 26.xii.85	Tono, where ringed caught 17.xi.87 seen up to 1.xii.87

Ringing recoveries

Of 48 Palaearctic birds ringed at Tono between 22 and 29 Dec 1985, 2 were recaptured where ringed 2 years later.

Of the 366 Palaearctic birds ringed in 1987 only 2 have been either recovered or caught and released in Europe (see Table 3).

Acknowledgements

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New information on birds in Serengeti National Park, Tanzania

by Neil Stronach

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Despite its exceptional prominence as a conservation area (IUCN 1985), Serengeti National Park (SNP) lacks a formal survey of its birds; yet the Park's importance to wildlife increases with the growing human pressures on wildland outside its boundaries. The most comprehensive description of the avifauna of SNP is presented in Schmidl's (1982) check-list. In this paper I present new information on the status of some birds in SNP, including 18 species not previously recorded there. Observations were made opportunistically while I was carrying out other work between March 1985 and December 1987. As Schmidl (1982) pointed out, fuller knowledge of SNP's birds requires that such casual observations are published and the opportunity is taken here also to discuss the significance of the records.

In the following annotated list an asterisk (*) indicates that the species was not included in Schmidl's (1982) check-list. The Serengeti Wildlife Research Centre is given the abbreviation SWRC. Names of localities follow Caro's (1970) map of Serengeti National Park and the surrounding area. All references to Schmidl are to his 1982 check-list.

***BANDED SNAKE EAGLE** *Circaetus cinerascens*

One seen over riverine forest on Mbalageti R. near Handajega, 23 June 1986. Britton (1980) gives its range in Tanzania as much further both east (Arusha) and west (Kibondo), but notes its presence along the Mara R. in Kenya.

***LESSER SPOTTED EAGLE** *Aquila pomarina*

One seen near Sansambe R, 17 Jan 1987; 2 over Nyaraswiga, 19 Dec 1986; one 5 km N of Lobo, 21 Jan 1987; one over Nyaraswiga, 6 Mar 1987; one at a rain puddle between Nyaraswiga and Banagi, 8 Nov 1987; and one 10 km S of Lobo, 15 Nov 1987. The January records support Britton's (1980) suggestion that small numbers winter in northern Tanzania.

AFRICAN HAWK EAGLE *Hieraaetus spilogaster*

Schmidl records only immatures. Between 1985 and 1987 there were 7 observations of adults, including one of a pair.

LIZARD BUZZARD *Kaupifalco monogrammicus*

Schmidl describes it as a rare visitor, but it was found to be common in *Combretum*/*Terminalia* in the NW, Jul 1985. This habitat was noted by Brown *et al*. (1982) as preferred. It was also found to be common in *Acacia*/*Commiphora* woodland and bushland between Musabi and Kirawira on 7 Nov 1985 after several days of heavy rain.

CROWNED EAGLE *Stephanoaetus coronatus*

A pair in relict *Acacia xanthophloea* woodland along a korongo 3 km S of Alamana R. on the eastern boundary of the Park, 4 May 1985 and one in young woodland and open grassland in Sonzo near Nyamalumbwa Hills, 15 Sep 1985. Schmidl lists only 3 old records from the Mara R.

***AFRICAN HOBBY** *Falco cuvieri*

One NE of SWRC, 28 Oct 1986.

HOBBY *Falco subbuteo*

Much more numerous during Oct–Nov 1986 than in those months in 1985 and 1987. During 1986 it was associated with heavy rain storms, and was attracted by emerging termites; for example 22 were seen between Mbuzi Mawe and Banagi, 22 Oct 1986. Schmidl considered it rare, giving only 2 dated records.

RED-NECKED SPURFOWL *Francolinus afer*

The range is more extensive than stated by Schmidl. Locally common in *Combretum*/*Terminalia* woodlands in NW, especially in area of dense *Combretum* regeneration and in thickets on large termitaria. Also common in tall grassland with *Acacia gerrardii* and *A. seyal* near Kenyangaga; along the Grumeti R. near Klein's Camp; and along drainage lines between Klein's Camp and Sand R. Breeding has not been recorded previously in SNP, but an adult with 2 half-grown young was found at Tabora B, 15 Sep 1985. Egg-laying would have been in Aug, which is slightly later than the dates given by Brown & Britton (1980) for this region.

***LESSER MOORHEN** *Gallinula angulata*

One on a flooded stream between Lobo and Klein's Camp, 20 Jan 1987.

BROWN-CHESTED WATTLED PLOVER *Vanellus superciliosus*

One on greenflush on heavily grazed short grassland at N end of Dutwa Plains, 10 Nov 1985. Schmidl notes only one specimen record, and no dated records, but quotes Britton (1980) that it might be regular.

***WHIMBREL** *Numenius phaeopus*

A flock of 10 at L. Lagarja, 19 Sep 1985. Britton (1980) notes that it is uncommon in E Africa away from the coast.

***GREAT SNIPE** *Gallinago media*

One at a rain pool on Dutwa Plains, 10 Nov 1985; one on 16 Dec 1986 and 4 on 17 Dec 1986 at rain pools on Tagoro, but none was seen at these last pools subsequently, so the birds may have been on passage.

BLACK-FACED SANDGROUSE *Pterocles decoratus*

Range more extensive than suggested by Schmidl, who states that it is confined to the western parts of the Park. However, it is common in woodland N to Tagoro, and less common N to Lobo and Grumeti R. One incubating eggs near SWRC, 20 Nov 1987, is the first breeding record for SNP. The date is outside the breeding season recorded by Brown & Britton (1980) for the region.

***CARMINE BEE-EATER** *Merops nubicus*

One in *Acacia gerrardii*/*A. senegal* woodland just S of the limits of cultivation between Fort Ikoma and Mugumu, 20 km W of the Park boundary, 13 Nov 1986. The bird was not seen clearly enough to identify the race.

BLACK ROUGHWING SWALLOW *Psalidoprocne pristoptera*

More common than suggested by Schmidl, who notes only one record. Seen around riverine forest and woodland at Sansambe R.–Wassi R. confluence, Mamarehe R., Grumeti R. at Baracharo Falls, Bologonja Spring and Tabora B Ranger Post.

ANTEATER CHAT *Myrmecocichla aethiops*

Apparently resident on the footslopes of Magogwa and Kuka Hills. Also seen 6 km N of Lobo, 8 Nov 1987. Schmidl describes it as a rare visitor.

***GREY WREN-WARBLER** *Camaroptera simplex*

One in termitarium thicket near Sangare R, 11 May 1985; a pair with recent fledglings in ridgetop *Combretum*/*Terminalia* woodland near Mbali Pali R, 6 Jul 1986; a pair in woodland near the top of Kamuyo Hill, 23 Dec 1986. The addition of this species to the SNP list is not unexpected, since Britton (1980) notes its presence at Loliondo and in the Mara R./Loita Hills region of Kenya.

***TABORA CISTICOLA** *Cisticola fulvicapilla*

Quite common in woodland and semi-evergreen thicket on Lobo, Magogwa, Longossa and Kuka Hills and in *Combretum*/*Terminalia* woodland, *Combretum*/*Ozaroa* bushed and wooded grassland and termitarium thickets in the NW. Also seen on Ngelek Hill, Lobo, in *Croton*/*Cordia*/*Grewia* thickets; on Varichoro Hills in *Combretum*/*Lonchocarpus*/*Grewia* wooded grassland and woodland; in *Acacia robusta* woodland on Losiurai; in *A. gerrardii* wooded grassland 5 km N of Lobo; and in *A. robusta* woodland on pediments of Oldoinyo Rongai. It is of interest that the records from Magogwa, Kuka and Lobo Hills are from over 2000 m, though Britton (1980) indicates that it occurs only below 1400 m.

***SINGING CISTICOLA** *Cisticola cantans*

Two seen in drainage line vegetation 7 km N of Lobo, 18 Jan 1987. Several cisticolas in rank herbage along Seronera R. above Kerr's Dam were either this species or Red-faced Cisticola *Cisticola erythrops,* which is also absent from Schmidl's list.

***STOUT CISTICOLA** *Cisticola robusta*

Scattered records, but appears to be widespread and locally common. Several in song in *Acacia gerrardii* woodland and bushland between Lobo and Klein's Camp, 11 Mar 1986 and 10 June 1987; in song on rocky hills near Seronera Wildlife Lodge Borehole, 25 Mar 1986; several in long grass along Wandamu R, 21 Dec 1986; common and in song in tall dense stands of the grasses *Pennisetum stramineum, Setaria* sp. and *Panicum maximum* on the margins of Hembe L, 6 Mar 1987; several in long grassland along Loiyangelani R, 29 Mar 1987.

***GREEN-CAPPED EREMOMELA** *Eremomela scotops*

Pairs in song in *Combretum/Terminalia* woodland and wooded grassland near Mbali Pali R, 18 Aug 1985 and 5 Jul 1986. Britton (1980) notes its presence in the nearby Masai Mara Reserve in Kenya.

***ICTERINE WARBLER** *Hippolais icterina*

One in a burnt *Acacia robusta* thicket in woodland on Kamuyo Hill, 23 Dec 1986 and one in song at the edge of the forest at Bologonja Spring, 8 Jan 1987. These records and the observation by J. Fanshawe of one at SWRC in Jan 1987 (East African Bird Report 1987; *Scopus,* 11) suggest that small numbers winter in SNP.

FAN-TAILED WARBLER *Schoenicola platyura*

Quite common in suitable habitat in the *Combretum/Terminalia* woodland zone of the NW; in rank herbage along riverine forest edges; in long grass around springs and seepages in woodland; and in reeds and thickets around pools in drainage lines. Schmidl notes only 2 records, both also in the NW. These records represent an extension of the range described by Britton (1980) for NE Tanzania, being further W than Fuggles-Couchman's (1981) reords from the Crater Highlands. However, Britton (1980) notes it presence on the Mara R. in Kenya.

***MOUSTACHED WARBLER** *Sphenoeacus mentalis*

One in rank herbage and thickets in a drainage line at Tabora B Ranger Post, 20 Aug 1985. This appears to be an extension of the range, being mid-way between the apparently disjunct eastern and western distributions of the nominate race as described by Britton (1980).

***BARRED WARBLER** *Sylvia nisoria*

One in kopje vegetation at SWRC, 22 Dec 1986. This is further W in Tanzania than previous records (Britton 1980).

LITTLE TAWNY PIPIT *Anthus caffer*

More common than suggested by Schmidl, particularly in its apparent favoured habitat of bushland and bushed grassland with bushes of 1–4 m, especially where heavy grazing by wildebeest has reduced the grass between bushes. Occurs also in wooded grassland. *Acacia* regeneration of the type favoured by this species has replaced mature woodland over large areas in the past 20 years or so (Norton-Griffiths 1979). Song flights were observed over *Acacia gerrardii* regeneration N of Lobo, 23 Sep 1987, and over *A. drepanolobium* and *A. senegal* bushland on the plateau of Losiurai, 29 Oct 1987.

GREY-CRESTED HELMET SHRIKE *Prionops poliolopha*

Schmidl indicates that this species is restricted to northern SNP. However, several flocks were seen in mature *Acacia robusta* woodland with dense regeneration thickets near the SNP/Maswa Game Reserve (MGR) boundary along the Duma R, 12 and 18 Oct 1985. A flock also was seen in *A. robusta* woodland with *Grewia* thickets on the lower slopes of Varichoro Hills, 22 Nov 1986. Lewis (1981) suggested that the lack of records in the area south of northern SNP might be due to few observers, or to confusion with the similar helmet shrike *Prionops plumata*. However, man-induced habitat changes have made the area just W of SNP and MGR unsuitable for the species because agricultural activities have removed most of the indigenous woodland.

GOLDEN-WINGED SUNBIRD *Nectarinia reichenowi*

Only recorded from just outside SNP (Schmidl: 105). One seen in drainage line vegetation at Seronera, 17 Apr 1986 and one by Seronera R. at the eastern end of Nyaraswiga, 22 Mar 1987. These birds may originate from either the Crater (Britton 1980) or the Loliondo Highlands (Fuggles-Couchman 1981).

***BRONZE SUNBIRD** *Nectarinia kilimensis*

Several in large flowering trees at Klein's Camp, 2 Nov 1986.

***JACKSON'S WIDOWBIRD** *Euplectes jacksoni*

Common in grasslands N of Grumeti R. and between Klein's Camp and Lobo during the wet and early dry seasons. Display grounds in use were found near Klein's Camp, 5 May 1985 and at Bologonja Gate, 2 Jan 1987. Notably commoner in the 1986–87 wet season, when rainfall was greater than average, than in the preceding 2 wet seasons. Britton (1980) notes that it occurs in the Loliondo Highlands.

***GROSBEAK CANARY** *Serinus donaldsoni*

One seen in *Acacia tortilis* woodland near Ndutu, 19 Apr 1987, is further west than previously recorded (Britton 1980). It seems likely that the range is continuous between Ndutu and the Gregory Rift Valley to the E along Olduvai Gorge, as it is in the Yellow-necked Spurfowl *Francolinus leucoscepus*.

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Courtship display of the Long-Trained Nightjar *Macropsalis creaga*

by Fabio Olmos & Marcos Rodrigues

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The reproductive behaviour of most neotropical nightjars has been rarely described (Sick 1985). The Long-Trained Nightjar *Macropsalis creaga*, one of the least known members of the group, is no exception; very little information has been published on its behaviour and ecology (Sick 1985). The species is endemic to the rainforests of southeastern Brazil and Misiones, Argentina (Meyer de Schauensee 1966) and is considered as threatened due to widespread habitat destruction over its restricted range (Sick 1985, Collar & Andrew 1988).

We have observed this species at Fazenda Intervales, a 38,000 ha state reserve in southern São Paulo, Brazil (c. 24°11′S, 48°32′W). The area is mostly covered by primary Atlantic forest with a few patches of second growth and cultivation. Climate is very humid with rain and fog on most days; during the winter there are frosts and, once there has been snow. The altitudinal range is 60–1100 m a.s.l., with most of the area at 600–800 m. Our observations were made in an area at 650 m.

On 26 November 1988 at dusk (19·02 hrs) we watched a male *Macropsalis creaga* (identified by its long tail) landing on a dirt road surrounded by forest. A male individual (probably the same) had been seen at the same spot every night on which there had been observation since late September. The bird arrived flying over the trees to land on the road. From time to time the nightjar flew up to the trees, up to 100 m way, apparently catching insects from the leaves while flying. Its flight was butterfly-like, its spread tail being very conspicuous. After each flight the bird landed on the same spot on the road.

At 19·08 hrs a female nightjar (recognized by its 'normal'tail) flew out of the forest and started hovering in front of the landed male c. 80 cm above the ground. The male immediately raised its tail from the usual horizontal position to a right angle, forming a conspicuous white 'V' in the dim light, and displayed its light throatmark (Fig. 1a). After a few moments the female flew away, being followed by the male. At 19.10 the male landed again on its spot, alone. Two minutes later the female approached again, landing in front of the male, which again raised its tail and displayed the throat mark for a few seconds. It then jumped up in the air and began hovering around the female (Fig. 1b). The spread tail again formed a conspicuous 'V'. After 3 turns around the female, the male mounted her for 6 seconds, flapping its wings all the time (Fig. 1c). Thereafter both birds flew away out of sight. At 19.15 the male landed again on its spot, recommencing its hunting behaviour. Minutes later it flew away, not to return. Darkness was complete at 20·00 hrs.

The presumed hunting behaviour described, in accord with *M. creaga* being a leaf-gleaner (we also observed this species catching, in flight, insects attracted by lights), could at the same time serve as a visual signal,

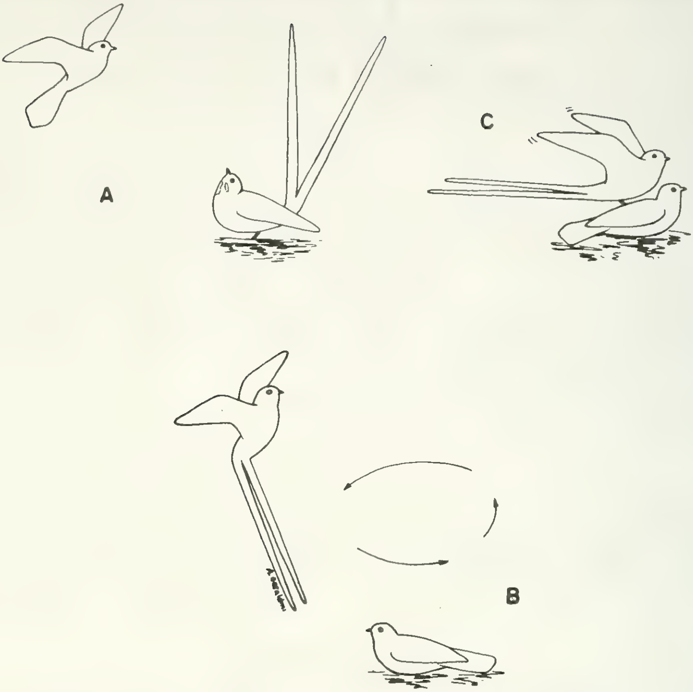

Figure 1. Courtship display of the Long-Trained Nightjar *Macropsalis creaga*: (a) ♀ approaches landed ♂, hovering in front of him for a few moments, while the ♂ displays his tail and throatmark, and then flying away followed by the ♂; (b) after the ♂'s return the ♀ lands in front of him, which induced the male to fly around her displaying his tail; (c) ♂ mounts the ♀.

since the buoyant white tail of the male was clearly visible against the forest canopy. It may thus resemble the aerial display reported for another long-tailed species, *Uropsalis lyra* (Hilty & Brown 1986). The fact that the same individual probably was found in the same spot for 2 consecutive months suggests an 'exhibition area' as in *Uropsalis*.

It is noteworthy that all the described courtship and most previous observations of this male nightjar have been limited to the crepuscular period. This may indicate a short hunting time, but it seems more likely that our observations covered a period in which hunting was linked to reproductive behaviour; shortly before complete darkness there is a greater capacity for recognizing the display signals of the white tail and throat mark.

The conditions of our observations precluded the recording of any vocalizations but it is probable that these occur as in other Caprimulgidae. Tape-recordings of vocalizations of *M. creaga* associated with other behaviour made by J. M. E. Vielliard and W. R. Silva are available in Hardy *et al.* (1989).

Comparative reproductive behaviour of the neotropical long-tailed nightjars (*Hydropsalis, Uropsalis* and *Macropsalis*) would be worth studying as this group's behaviour and ecology are mostly unknown, and would make favourable material from an evolutionary standpoint.

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Imperial eagles

by J. G. Parker

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Gonzalez *et al.* (1989, *Bull. Brit. Orn. Cl.* 109: 86–93) contend that the Eastern Imperial Eagle *Aquila heliaca* and the Spanish Imperial Eagle *A. adalberti* had contiguous breeding ranges in the 19th century. However, the evidence they adduce, albeit assiduously compiled and carefully collated, does not satisfactorily substantiate this hypothesis, and their premise that lack of known or reported hybrids is evidence for the specific distinction of the 2 forms, is not therefore valid.

Their map (p.90) indicates that, in the 19th century, at least 200 km separated the proven breeding range of *adalberti* in Iberia and Morocco from the postulated breeding areas of *heliaca* in France, Spain and Algeria, and by a much wider gap from the nearest recognised range of *heliaca* in Austro-Hungary and Greece.

A mere 2 clutches taken in southern France and northeastern Spain have been traced and these prove nothing save that, like many other avian species, Imperial Eagles may occasionally breed far beyond the normal range. Evidence for the regular breeding of any form of Imperial Eagle in these areas is lacking; in addition the few specimens traced indicate that the species was, in fact, always of only exceptional occurrence.

Various authors cited state that Imperial Eagles did breed in these areas, but neither the reliability of these observations nor their sources are apparently assessed. As an example of the need for caution, Moll (1957), cited by Bannerman & Bannerman (1983), claims that the otherwise unrecorded Common Buzzard *Buteo buteo* is found throughout the year in Menorca, whereas my personal knowledge of the island and Moll's work leaves me in no doubt that he had misidentified the still abundant Booted Eagles *Hieraaetus pennatus*. Dresser (1873) is quoted as an authority for the occurrence of *heliaca* in France; however, he merely cites a French work published 4 years before *adalberti* was described.

That specimens of the migratory *heliaca* have been taken in France is no evidence of breeding. From Gonzalez *et al.*'s map it appears that *heliaca* is known to have occurred in France no more often, indeed, than the Greater Spotted Eagle *A. clanga* in Britain, i.e. some 12 times (Snow 1971), without promoting any even tentative conclusions that it might therefore breed.

The suggestion that the information regarding Imperial Eagles breeding in Algeria points to *heliaca* seems unjustified. Loche (1867) attributed specimens he examined to *heliaca*, but may well not have known that the 2 forms had been separated when he actually wrote (he had taken one of the last 2 known Algerian clutches 8 years before). Tristram's (1860) description of an Imperial Eagle in Algeria "who plainly exhibited the white feathers of the shoulder" could well apply to *adalberti*, not *heliaca*; Vaurie (1965) writes that *adalberti* "Differs from nominate *heliaca* . . . by having "white shoulders".", whereas Etchecopar & Hue (1967) state that the species is "Dark plumaged with some white (a) on scapulars alone in the east, (b) on scapulars and shoulders in the west".

For the above reasons, the conclusion of Gonzalez *et al.* that the breeding range of the Eastern and Spanish Imperial Eagles were in contact, is not justified on the known facts.

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Notes on new and rare migrants in the Cape Verde Islands

by C. J. Hazevoet

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Little has been written on the migrant birds occurring in the Cape Verde Islands since Bannerman & Bannerman's (1968) account. The results of collecting visits by J. V. dos Santos, 1969–72, were given by Frade (1976). Observations made from ships in Cape Verde seas in 1976 were published by Lambert (1980), while Nørrevang & den Hartog (1984) and Summers-Smith (1984) reported on observations made during brief visits in 1982 and 1983 respectively. The first record of Red-footed Booby *Sula sula* in Cape Verde was published by den Hartog (1987).

During the 1980s, ornithological research and birdwatching in the islands increased considerably, there having been an almost complete lack of any in the preceding decade. Unfortunately, most results were published in private reports only or not at all. All available information, including records of several new migrants not observed by the present writer, will be included in a forthcoming British Ornithologists' Union Check-list of the Birds of the Cape Verde Islands (Hazevoet, in prep). Doubtless, the list will continue to grow as more and more ornithologists and birdwatchers visit the islands, probably showing that almost all Palaearctic migrants known from the West African mainland can be found, be it in limited numbers, in the Cape Verde Islands as well.

During 1986–90, I visited the Cape Verde Islands 5 times: twice on short visits, Feb–Mar 1986 and Dec 1987 to Jan 1988, as a tour-leader for groups of naturalists; in 1988–90, I stayed altogether 7 months in the country in connection with a programme for the development of national parks and protected areas under the auspices of the International Council for Bird Preservation and the Instituto Nacional de Investigação Agrária. All islands and most of the islets were visited, many of them several times.

Here a brief report is given of species new or unpublished for Cape Verde (marked *) and of a number of species which are apparently more regular visitors than formerly supposed. During my visits, I recorded 9 species new for Cape Verde. One of these, Lapwing *Vanellus vanellus,* has already been reported elsewhere (Hazevoet 1988). Through the courtesy of several other observers some of their unpublished records have been included here. Unless stated otherwise, all observations are by the author.

The Cape Verde Islands are situated c. 500 km west of Sénégal. There are 9 inhabited main islands and several smaller islands and islets. Because of the almost complete lack of surface water, large concentrations of migrant waders, so prominent along West African coasts, are rare and found only at a few lagoons and salt-pans. The migrant landbirds reported here were nearly always encountered in the more flat, desert-like eastern islands, probably not only because these are nearer to the mainland but also because small passerines can be more easily found there as they concentrate in bushes and oases. In the highly mountainous western islands, small migrant birds, if they occur there at all, are hard to locate.

LIST OF SPECIES

INTERMEDIATE EGRET *Egretta intermedia*

One was present at the lagoon near Pedra Badejo, Santiago, on 9 May 1989. First recorded 11 Jan 1965, when one was collected at the same lagoon (de Naurois 1965, R. de Naurois). J. V. dos Santos collected 4 on Santo Antão on 27 Oct, 10 and 13 Nov 1972 (Frade 1976). On Sal, 4 were seen at Santa Maria on 20 Mar 1983, and one at Pedra Lume on 21 Mar 1983 (G.-M. Heinze). Apparently, *E. intermedia* visits the islands regularly in small numbers, being one of the few Afrotropical species to do so. In Africa it is resident south of the Sahara, but some local movements are known and it is possibly migratory (Brown *et al.* 1982). The species has increased its range and abundance in West Africa since the 1950s (Macdonald 1978).

SPOONBILL *Platalea leucorodia*

Observed several times 1988–90, almost exclusively at 2 locations. At the Pedra Badejo lagoon on Santiago, 8 were present on 9 Nov 1988, 4 on 9 May 1989 and a single bird on 10 Apr 1990. Previously seen there in Feb and Apr 1963, in Jan 1965 (de Naurois 1965, R. de Naurois) and in Feb 1966 (Bannerman & Bannerman 1968). On Boavista, at the Rabil lagoon, 5–6 were observed 17–23 Sep 1988, and singles on 19 May 1989 and 19 Mar 1990. The birds in Sep 1988 had been present already some weeks prior to the above dates (M. Heinze). At the same location, it had been observed in Apr 1963 (de Naurois 1965, R. de Naurois). There are only 2 records from other locations: a bird in poor condition was seen near Tarrafal, Santiago, on 16 Jan 1986 (C. J. Camphuysen), and the author saw one along the coast some kilometres east of Curral Velho, Boavista, on 20 Sep 1988, perhaps one of the group seen at the Rabil lagoon.

From the above data it can be concluded that the species is a regular (possibly yearly) visitor in small numbers, but almost completely restricted to the 2 mentioned lagoons, which are about the only suitable localities in Cape Verde. The largest group-size noted so far was 10–12 in Jan 1965 (R. de Naurois). In West Africa, the nominate race is an uncommon winter visitor south to the northern tropics; non-breeding birds from Mauritania (*P. l. balsaci*) disperse south to Sénégal and Guinea-Bissau (Brown *et al.* 1982). Although the Spoonbills occurring in Cape Verde are probably migrants from Europe, the possibility that birds from Mauritania are involved cannot be ruled out completely.

***MARSH HARRIER** *Circus aeruginosus*

On 1 Mar 1986, an adult female was observed on Raso. On Boavista, the species was seen on 3 occasions: an adult female at the Rabil lagoon on 18 Sep 1988 and an adult female west of Curral Velho on 20 Sep 1988 may have been the same individual; on 19 Mar 1990, an immature was seen north of Curral Velho. Two previous records: on 21 Mar 1983, 2 adult males were present at the salt-pans at Pedra Lume on Sal (G.-M. Heinze), and a female or immature was seen on Raso on 8 Feb 1985 (S. C. Madge).

The species seems to be a regular visitor to Cape Verde in small numbers. It is a widespread winter visitor to tropical Africa (Brown *et al.* 1982).

COLLARED PRATINCOLE *Glareola pratincola*

One was seen at Calheta, Maio, on 27 May 1989. Two previous records: a female collected by L. Fea at Pedra Badejo (presumably at the lagoon), Santiago, on 29 Apr 1898 (Salvadori 1899), and a female collected by J. V. dos Santos on Santiago (no precise location given) on 20 Sep 1969 (Frade 1976). Another was listed by Bourne (1955) as being collected by the Blossom expedition in 1924, but this is an error and referred in fact to a Wood Sandpiper *Tringa glareola* (cf Rhoades 1952). In West Africa, *G. p. pratincola* is a locally abundant to rare winter visitor mainly along the southern edge of the Sahara; resident *G. p. fuelleborni* is nomadic with considerable movements, but without a clear pattern (Urban *et al.* 1986). The subspecies are not separable in the field.

KNOT *Calidris canutus*

A locally abundant winter visitor to West African coasts (Urban *et al.* 1986), the species is surprisingly rare in Cape Verde. On 9 Nov 1988, one was observed at the lagoon near Pedra Badejo, Santiago. On previous days heavy showers had fallen and the lagoon was well filled with water, prompting many waders to visit the site. The only previous mention of Knot was by Alexander (1898) who listed it as observed in salt-pans on Maio on 20 Nov 1897, but did not record the number seen.

BAR-TAILED GODWIT *Limosa lapponica*

Reported from São Vicente in Oct 1983 by Summers-Smith (1984), who thought it to be unrecorded previously. However, Frade (1976) listed 2 specimens collected in Nov 1969 and Dec 1972 on Santiago and São Vicente respectively. During the last decade, it has been recorded by several other observers (including the author) and it appears to be a regular winter visitor in small numbers, usually along the shore or at salt-pans. There are now 11 records (Oct–Feb) from Santiago, Fogo, São Vicente, Sal, Boavista and Maio. In West Africa, it is a frequent to abundant winter visitor to the Atlantic coasts (Urban *et al.* 1986).

***SPOTTED REDSHANK** *Tringa erythropus*

On 9 Nov 1988, one was present at the lagoon near Pedra Badejo, Santiago, on the same occasion as the Knot listed above. Not recorded previously. In West Africa, the species is an uncommon to locally abundant winter visitor to inland marshes, floodland and coastal saltpans (Urban *et al.* 1986).

BLACK-HEADED GULL *Larus ridibundus*

First reported from the Cape Verde Islands on 30 Dec 1923, when 2 were collected by the Blossom expedition at Mindelo, São Vicente (Rhoades 1952). Only in Oct 1983 was it reported again, when one was observed by Summers-Smith (1984), also at Mindelo. Observations have increased considerably since and there are now c. 15 records from Santiago, Fogo, São Vicente, Sal and Boavista, as well as in Cape Verde seas, mostly of singles but parties of up to 10 have been reported, all between Sep–Mar. In West Africa, it is a common coastal winter visitor to Mauritania, but uncommon further south (Urban *et al.* 1986).

***SANDWICH TERN** *Sterna sandvicensis*

On 12 Mar 1990, one was seen at sea off Tarrafal, São Nicolau. Not mentioned in the literature, it had previously been recorded from Santiago, São Nicolau and Maio in Dec 1986 and Jan 1987 (D. de Bruijn) and at sea off Santo Antão, Sal and Boavista in Dec 1988 and Jan 1989 (K. Morgan). Furthermore, there is a ringing recovery "pre 1970" (further details lacking at present) of a bird ringed in UK (Tauraco AFRING Data Bank). Presumably, the species is regularly present in Cape Verde seas in small numbers during winter. In West Africa, it is a common winter visitor to the Atlantic seaboards (Urban *et al.* 1986).

***LITTLE TERN** *Sterna albifrons*

On 19 Mar 1990, one was foraging along the shore south of Sal Rei, Boavista, while 4 were resting at the Rabil lagoon. The following day 6 were present at the lagoon. The only previous record was of one observed on Maio on 7 Oct 1988 (J. P. Ledant). In West Africa, the species is a common coastal passage migrant and winter visitor; it breeds in Mauritania and Senegambia, but movements of tropical breeders are little known (Urban *et al.* 1986).

TURTLE DOVE *Streptopelia turtur*

On 30 August 1988, one was seen at Palmeira, Sal, and on 17 Sep 1988, 2 were present in the dunes along the Rabil lagoon, Boavista. One was observed at Achada São Filipe, Santiago, on 23 Sep 1988 (J. P. Ledant). Three previous published records: 2 were seen in a central valley on São Vicente on 23 Sep 1951 (Bourne 1955, W. R. P. Bourne); one at Mindelo, also on São Vicente, on 6 Oct 1983 (Summers-Smith 1984); and one flying around a ship north of Maio (landsight) on 6 Oct 1976 (Lambert 1980). The species appears to be a regular passage migrant in autumn. In West Africa, it is a common passage migrant and locally abundant winter visitor in the Sahelian zone (Urban *et al.* 1986).

***SHORT-EARED OWL** *Asio flammeus*

On 13 Mar 1990, one was seen hunting on Raso. Previously, only a wing of this species had been found, near Santa Maria, Sal, on 23 Feb 1983 (G.-M. Heinze). In West Africa, winter visitors cross the Sahara in small numbers which probably vary annually (Cramp *et al.* 1985).

***TREE PIPIT** *Anthus trivialis*

One was observed in bushes at the oasis near Curral Velho, Boavista, on 20 Sep 1988. Not recorded before. An abundant winter visitor to West Africa eastwards from the Guinea coast at 10°N, mainly on passage in Sénégal (Cramp *et al.* 1988, Morel 1972).

***YELLOW WAGTAIL** *Motacilla flava*

A bird in winter plumage was foraging in *Zygophyllum-Cistanche* vegetation growing near the overflow of a sewage-installation near Santa Maria, Sal, on 25 Nov 1988. On 13 and 14 Mar 1990, one was present on Raso, foraging at tidal pools on the rocky shore. Not recorded previously.

A common winter visitor in West Africa south of the Sahara and very common in Sénégal (Moreau 1972, Morel 1972).

***NIGHTINGALE** *Luscinia megarhynchos*

One was present at the oasis near Curral Velho, Boavista, on 20 and 21 Sep 1988. Not recorded before. In West Africa, a winter visitor south of the Sahara, mostly north of the equator, and common in Sénégal (Moreau 1972, Morel 1972).

WHEATEAR *Oenanthe oenanthe*

Apparently a regular winter visitor in small numbers. Two were observed south of Fonte Vicente, Boavista, on 26 Dec 1987, and a single bird was seen in the same area on 19 Mar 1990. One was present on Raso on 9 Mar 1985 (P. & J. Hall). In 1987, one was seen at Ponta Preta, Maio, on 8 Jan, and another near Barril, São Nicolau, on 27 Jan (D. de Bruijn). Only 2 previous records: 2 seen, of which one was collected, on Maio, on 22 Nov 1897 (Alexander 1898); one was collected by the Blossom expedition at Preguiça, São Nicolau, on 28 Feb 1924 (Rhoades 1952). The 2 collected birds were both *O. o. leucorhoa*. In West Africa, it winters in a broad belt south of the Sahara; both *O. o. oenanthe* and *O.o. leucorhoa* are common in winter and on passage in Sénégal (Cramp *et al.* 1988, Morel 1972).

***OLIVACEOUS WARBLER** *Hippolais pallida*

On 19 and 20 Sep 1988, one was observed at the oasis near curral Velho, Boavista. Not recorded before. A locally numerous winter visitor in West Africa from Sénégal to Nigeria (Moreau 1972, Morel 1972).

***SUBALPINE WARBLER** *Sylvia cantillans*

A male was seen in low vegetation near the cliffs on Raso on 14 Mar 1990, and another male in bushes along the Rabil lagoon, Boavista, on 19 Mar 1990. Not reported previously. A widespread winter visitor in West Africa, common in Sénégal (Moreau 1972, Morel 1972).

***WILLOW WARBLER** *Phylloscopus trochilus*

From 19 to 22 Sep 1988, at least 10 birds were observed in trees and bushes at 3 locations on Boavista (Fonte Vicente, Curral Velho, Porto Ferreira). One was seen at Juncalinho, São Nicolau, on 17 Mar 1990. Not reported previously, but probably occurs regularly in small numbers on migration. A common winter visitor in West Africa south of 11°N, in Sénégal mainly on passage (Moreau 1972, Morel 1972).

***SPOTTED FLYCATCHER** *Muscicapa striata*

A single bird was present in bushes near Porto Ferreira, Boavista, on 21 Sep 1988. No previous reports. A common winter visitor in West Africa south of 7°N, in Sénégal mainly on passage (Moreau 1972, Morel 1972).

PIED FLYCATCHER *Ficedula hypoleuca*

Singles were observed on Boavista in 1988 at Fonte Vicente (19 Sep), Curral Velho (20 Sep) and at Porto Ferreira (22 Sep). The only record previously was of one collected by F. Newton c. 1900 (Bocage 1902), which was overlooked by Bannerman & Bannerman (1968). A common winter visitor in West Africa from 11°N to the equator, in Sénégal mainly on passage with some wintering in the south (Moreau 1972, Morel 1972).

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The status of the Red-footed Booby *Sula sula* at Ascension Island

by K. E. L. Simmons

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In an earlier paper (Simmons 1968), on the basis of my few sightings during 1962–64 and an assessment made after the BOU Centenary Expedition of 1957–59 (Ashmole 1963), I assumed that the Red-footed Booby *Sula sula* was on the point of extinction at Ascension Island (South Atlantic Ocean). Olson (1977), not having encountered the species in 1970 and 1971, further suggested that it might by then have been "altogether extirpated" there. Having long been reduced to a tiny remnant population based on Boatswainbird Islet (BBI) off the southwest coast of the main Island (Stonehouse 1962, Dorward 1962, Ashmole 1963, Simmons 1968), *S. sula* is certainly now the least numerous of the 3 pan-tropical boobies which occur at Ascension, where the Brown Booby *S. leucogaster* and especially the Masked Booby *S. dactylatra* continue to breed in good numbers. Its predicted demise has not, however, been confirmed by more recent observations.

Earlier status

With the main exception of the Sooty Tern (Wideawake) *Sterna fuscata*, the indigenous seabirds of Ascension have long been banished to the safety of BBI, the 14 occupied coastal stacks, and the steeper parts of the coastal perimeter of the main Island. As shown by the sub-fossil records (Ashmole 1963, Olson 1977), *S. sula* was one of the species that once inhabited the large inland seabird colonies in the vicinity of Sisters Peak and Mars Bay, all totally deserted since the last century due to man and his introduced animals, most notably cats (the predations of which, from a large feral population, continues unchecked to this day). In the absence of the trees typically used for nesting by *S. sula* elsewhere in its range, the birds must have built their nests mainly on rock-tops and other tree-substitutes in the lava flows (Ashmole 1963, Simmons 1967b).

Early cases of actual nesting at Ascension are lacking, however, and the absence of trees for most of the recent past has led ornithologists to doubt whether the species ever bred there at all, at least in historical times (Murphy 1936). Apart from the sub-fossil record, and despite the fact that the Island was once designated as the type locality of the species (see Murphy 1936), the earlier evidence for breeding at Ascension is tenuous and seems to rest entirely on the testimony of Osbeck (1771) who landed there in 1752. None of the main expeditions in the 19th century reported any *S. sula* (Murphy 1936, Olson 1977), nor did a party from the Cleveland Museum of Natural History which spent 2 weeks collecting seabirds on BBI in 1925 (Simmons 1927), though a specimen obtained by an American expedition in March 1890 (prepared as a skeleton) has since been re-discovered (Olson 1977). Another specimen, from a small collection made by Dr H. W. Acland in 1856 and identified by Sclater (1856), appears to have been previously overlooked; this bird (a light-morph adult) has now been traced for me to the Oxford University Museum by Dr E. K. Dunn. Two further specimens were collected by the Scottish National Antarctic Expedition during a visit to Ascension in June 1904 (N. P. Ashmole; see Eagle Clark *et al.* 1913); at least one of these, a near adult light-morph bird, survives in the Royal Scottish Museum, Edinburgh, where it was identified for me by Dr Ashmole.

The only substantial numbers of *S. sula* ever reported during the present century were the "thousands" observed by Tomlinson (1947) on 1 June 1946 day-roosting upon high crags in the vicinity of Powers Peak, White Hill, and Weatherpost near the southwest coastal area of the main Island opposite BBI. These were mainly light-morph adults (i.e. all-white but for black on the wings) and a specimen obtained at the time confirmed the identification. Col. Tomlinson, who had by then resided at Ascension for several years, also believed that large numbers of boobies seen flighting parallel to the coast at English Bay at sunset on about 25 May were the same birds. The only white boobies he had seen previously were *S. dactylatra* on BBI and he was convinced that no *S. sula* were present there at the time. The birds reported to him in late May 1946 were said by St Helenians, who had worked at Ascension for many years, to arrive annually and settle in the same area for about 8 weeks between May and June, then disappear again.

During the BOU Expedition of 1957–59, Ashmole (1963) provisionally identified 3 booby skulls he had collected on White Hill as those of *S. sula*. He considered Tomlinson's birds to have been the survivors of the original Ascension population that had been reduced by old age to a largely non-breeding remnant by 1957–59. Olson (1977) confirmed Ashmole's identification and suggested that, as it was unlikely that such large numbers had remained undetected at Ascension until 1946, the birds were possibly emigrants from Fernando Noronha, perhaps disturbed by human activity during the Second World War. The area of Ascension where Tomlinson saw his birds, however, was then (and until the mid-1960s) far less accessible than it is today, for, until the modern road was built, it took most of a day's difficult hike via Green Mountain to get there and back; further, competent ornithological observation away from the mainland Wideawake fairs was negligible until 1957 and, Tomlinson apart, went wholly unreported. Large numbers of *S. sula* could, therefore, have gone undetected for years, especially if the birds appeared only seasonally as claimed. Nevertheless, Tomlinson's record does not wholly convince and it is by no means unlikely that most of the boobies he saw, including those flighting past English Bay, were actually *S. dactylatra*, as this species is known to attempt to breed opposite BBI from time to time and to fly past the north of the Island near English Bay in large numbers on its way to spend the night on BBI.

BOU Expedition 1957–59

The BOU Expedition, during some 18 months, did find up to about 30 *S. sula* on BBI, representing some 10 pairs. These birds were continuously present on the steep cliffs, though their nest sites—with a

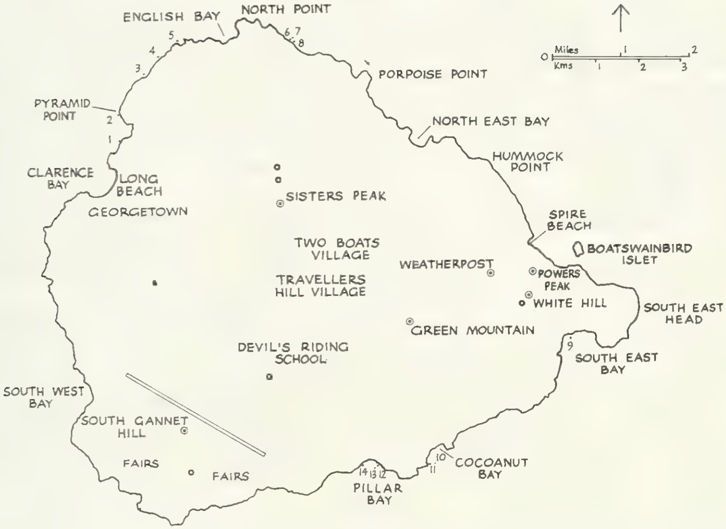
ENGLISH BAY
NORTH POINT
1
2
3
4
5
6
7
8
PORPOISE POINT
Miles
0
1
2
Kms
1
2
3
PYRAMID POINT
NORTH EAST BAY
HUMMOCK POINT
CLARENCE BAY
LONG BEACH
SISTERS PEAK
GEORGETOWN
SPIRE BEACH
BOATSWAINBIRD ISLET
TWO BOATS VILLAGE
WEATHERPOST
POWERS PEAK
TRAVELLERS HILL VILLAGE
WHITE HILL
SOUTH EAST HEAD
GREEN MOUNTAIN
9
DEVIL'S RIDING SCHOOL
SOUTH EAST BAY
SOUTH WEST BAY
SOUTH GANNET HILL
10
COCOANUT BAY
11
FAIRS
FAIRS
14
13
12
PILLAR BAY

Figure 1. Sketch-map of Ascension Island. Coastal stacks are numbered 1–14. The approximate sites where sub-fossil bones of *S. sula* were discovered are indicated by single circles.

single exception (see photograph by D. F. Dorward in Nelson 1978, Plate 12)—were inaccessible and they were not proved to breed successfully (Stonehouse 1960, 1962, Dorward 1962). None was found elsewhere, except on the mainland near BBI where nest-material was collected (Ashmole 1963).

Few data were presented in the official expedition reports of these first definitive records of *S. sula* on BBI and its attempted breeding there, and some of the information was conflicting; for example, the cliffs frequented by *S. sula* were said to be on the northwest of BBI by Dorward (1962) but on the southeast by Stonehouse (1962). Stonehouse's (1960) book provides a few more facts, however: though ultimately unsuccessful, the observed nest did hold a downy nestling for a time; the breeding pair, as also most of the rest of the population, were dark-morph birds (brown with white tails); and the small colony appeared to be nesting annually at some time between April and September. In addition, Dr Stonehouse tells me that there were about 10 or 12 pairs, plus hangers-on, present April–September; that the colony was on the southwestern side of BBI, all nests but one being out of view from above—occupancy being judged from the presence of squatting birds (max. 12 nests) seen on approaching or leaving BBI by sea; and that the occupied nest was deserted after the nestling disappeared. Dr N. P. Ashmole also informs me that he photographed the adult and chick on 25 May 1958, this indicating laying in late March or early April.

Observations 1962–64

I was resident in Georgetown (GT), Ascension, for 25 months during 1962–64, but visited BBI only on 5 March 1963, when I saw just a single *S. sula*—a light-morph bird—in flight nearby (Simmons 1968), though I did not inspect the cliff-faces occupied during 1957–59. I also saw single *S. sula* when visiting the area opposite BBI on occasions: a dark-morph adult in soaring flight over the mainland near Powers Peak in June 1962 and a light-morph adult there collecting nest-material (which it took back to BBI) in July 1962. On 8 dates in December 1962 and January 1963, a single light-morph adult paid visits to the *S. leucogaster* colonies I was studying near GT (see Simmons 1967a,b, 1970) and was observed displaying to the other species; what was presumably the same bird flew up-coast near GT one evening in April 1963 (Simmons 1968).

These were the only sightings anywhere along the western coast of Ascension during daily observations on seabirds during 2 years. None was seen even in the feeding congregations (of up to 500 *S. leucogaster* and 90 *S. dactylatra*, plus some 130 Ascension Frigatebirds *Fregata aquila*) that formed frequently just off-shore in 1962 during a prolonged influx of pelagic fish. I saw no *S. sula* on my return visit in April 1966 but I did not go to BBI or the vicinity of the main Island opposite it, my activities being confined to the northwest coast where no *S. sula* turned up at the *S. leucogaster* colonies or joined feeding birds nearby.

Observations 1971–77

I returned to Ascension 3 times during the 1970s. On the first trip (15 December 1971 to 11 January 1972), I was able to visit BBI on 8 January: no *S. sula* were seen from the top of the islet but examination of the southwest cliffs from the anchorage just west of the natural arch and landing (see map in Stonehouse 1962) revealed 2 light-morph adults perched c. 10 ft apart and a dark-morph adult in flight nearby. The only other boobies seen off the west coast near GT and at the colonies on Stacks 1 and 2 (to which my work was mostly confined) were *S. leucogaster* and passing *S. dactylatra*; but, on retrospect, 2 white boobies glimpsed on Stack 5 from the sea on 8 January and thought to be *S. dactylatra* may well have been *S. sula*. On my second trip (20 December 1972 to 11 January 1973), when I was unable to visit BBI or the area of Powers Peak, I saw no *S. sula* from English Bay, Mars Bay and North East Bay, nor in the GT area or elsewhere off the west coast. A team from the BBC (Ned Kelly and Maurice Tibbles) visited BBI for filming after we left, remaining there a few days, but reported no *S. sula*.

The picture was transformed, however, on my last 1970s' trip (16 December 1976 to 14 January 1977). Although I was again unable to visit BBI, R. J. Prytherch and I did examine its western cliffs from the mainland through a powerful telescope on 4 dates, recording the following *S. sula* (all perched on ledges unless otherwise stated):

19 December 1976, from Weatherpost, late afternoon: 4 light-morph adults singly at various points in the same general area of the southwest cliffs where I had seen the birds in 1972.

26 December 1976, from Powers Peak, 17.15 to 18.30 GMT: 11 birds at first and eventually 16 in the same area, 1–2 of which flew about at times and changed perches. All were light-morph birds (2–3 sub-adults) mostly settled in one section of the steep cliff, with a few at another site a little further north.

8 January 1977, from Spire Beach at sea-level almost directly opposite the west coast of BBI, 13.00 to 14.15 (R. J. Prytherch): 9 birds, all light-morph (one sub-adult), including 4 at sites not visible from Powers Peak.

8 January 1977, from Powers Peak, 18.15 to 18.30 (R. J. Prytherch): 7 birds, all light-morph (including one sub-adult).

12 January 1977, from Powers Peak, 13.45 to 14.00: 5 light-morph adults. 18.30 to 18.45: 11 adults—9 light-morph and 2 dark-morph (one of which was in flight).

In all, we located at least 18 individual *S. sula* on BBI: 16 light-morph, of which at least 2 were sub-adults, and 2 dark-morph adults. The total population must have been higher than this, allowing for further occupied sites on the far northwest cliffs and for birds hidden in dead ground or absent at sea. It is also most likely that we missed further dark-morph adults—and any juveniles (see below)—as these brown birds are much harder to see at a distance unless flying, as we found also with *S. leucogaster*. Unlike the numerous breeding *S. dactylatra*, with their nestlings and dependent juveniles, the *S. sula* showed no evidence of nests or of any stage of breeding, appearing to be mainly loafing and preening.

No *S. sula* were encountered in the South East Head area or during an inspection of Stacks 10–14 in Cocoanut and Pillar Bays off the south coast, or off Mars Bay. There were, however, again some sightings in the GT area:

21 December 1976, 11.50 to 13.00, 15.00 to 16.35, 18.00 to 18.30 GMT: a light-morph sub-adult located (and photographed) on mainland rocks near Stack 1, day-roosting with immature and sub-adult *S. leucogaster*. It left at 18.27, flying up-coast.

27 December 1976, afternoon: absent in the morning, the same bird was again present at the same spot where it was netted and ringed by R. J. Prytherch, afterwards settling on Stack 1. It was seen again later (18.48), flying in the vicinity of Stack 2 and then further down the coast before moving out of sight into Clarence Bay.

29 December 1976, 06.45: an all-dark juvenile appeared briefly amidst a large feeding congregation of seabirds (mainly *S. leucogaster*) in Clarence Bay, then flew on down-coast (R. J. Prytherch).

3 January 1977, 06.35: a light-morph sub-adult arrived from the south with a small flock of *S. leucogaster* and briefly joined a feeding congregation in Clarence Bay before flying out to sea and then heading south again (R. J. Prytherch). This was a different individual from the one seen near Stack 1.

During 7 evening sea-watches just east of North Point, from near where Tomlinson had sighted large numbers of passing boobies in 1946, we also obtained the following records of *S. sula*, all but one of the birds travelling southeast towards BBI, mostly close inshore and usually, at least for a time, in company with greater numbers of *S. leucogaster*:

22 December 1976, 18.45 to 19.30: a light-morph sub-adult in failing light.

24 December 1976, 18.45 to 19.30: 5 singletons (19.02 to 19.25)—3 light-morph adults, one white-morph sub-adult, and one all-brown juvenile. All but one bird passed us, virtually overhead, closely following the shoreline.

28 December 1976, 18.25 to 19.40: 2 singletons—an all-brown juvenile (18.58) and a light-morph sub-adult (19.03).

2 January 1977, 18.50 to 19.45: a light-morph adult (19.40 in poor light).

5 January 1977, 18.30 to 19.40: 5 singletons—an all-brown juvenile (18.30, going west), a white-morph sub-adult (18.37), 2 light-morph adults (18.42 and 19.40), and a dark-morph adult (19.35).

7 January 1977, 17.30 to 19.30, at new site further east (Klinka Club): 3 single light-morph adults (at 18.53, well out to sea, 18.57, and 19.27).

Thus, 1–5 *S. sula* were seen on all but one of our sea-watches, the tallies being: light-morph adult, 9; light-morph sub-adult, 4; dark-morph adult, one; and juvenile, 3. Other seabirds logged were: Madeiran Storm-petrel *Oceanodroma castro* (small numbers), *S. leucogaster* and *S. dactylatra* (many, passing frequently in flocks), *F. aquila* (a few), White (or Fairy) Tern *Gygis alba* (a few), Black Noddy *Anous minutus* (numerous on all watches), Brown Noddy *A. stolidus* (a few), and *S. fuscata* (just 2 singletons, the breeding fairs of this species being currently unoccupied, though a new season was imminent). These sea-watches proved that—at least at times—very small numbers of *S. sula* regularly pass North Point towards BBI in the late afternoon. Such sea-watches therefore, are a useful means of monitoring the continuing presence of this species at Ascension if visits to BBI or its vicinity are not possible. As *S. dactylatra* was shown to pass North Point in large numbers offshore, the identification of the white boobies seen by Tomlinson in 1946 as *S. sula* is questionable.

Recent sightings

Apart from a single sighting in May 1982 (Bruce 1983), any further information on the continuing presence of *S. sula* at Ascension was lacking during the early 1980s. Two filming teams, Anglia Survival Ltd (1983) and the BBC again (1987), did not record the species on BBI, nor did Dr B. C. Livezey on 14 January 1984 and Dr J. de Korte on 8–10 February 1987 (den Hartog 1987). During a visit late in 1985 by members of a Joint-Services expedition to Ascension ("Exercise Maritime Ascension '85"), only a single (light-morph) bird was seen—from the top of BBI on 25 November (R. H. J. Nash).

However, fears that the species had finally disappeared from Ascension were confounded by the findings of the Royal Air Force Ornithological Society expedition in February 1987, just after Dr de Korte had left (Blair 1989 and *in litt.* to Dr T. H. Johnson; see also den Hartog 1987). During 2 visits by boat to view BBI from the sea, at least 20 adult *S. sula* were located on the cliffs or in flight on the first occasion and 15 on the cliffs on the second. Amongst the latter group of apparently nesting birds on the northwest side, were 3 downy young; though not certainly associated with the adults, the possibility that they were of the same species is strong. There were also 15 coastal sightings—12 off or near the North Point area (where birds had been seen passing in 1976–77) during evening sea-watches, 2 near North East Bay, and one off the northwest coast near Stacks 4 and 5—and also one record of a group of 3 travelling away from Ascension one evening off GT. Nearly all the *S. sula* seen in February 1987, including 14 out of the 15 on the northwest cliffs of BBI, were light-morph birds. In November 1988, during a joint RAFOS/Army Bird Watching Society visit to Ascension ("Exercise Booby I"), there were several further sightings (R. H. J. Nash): from 1–4 during each of 15 evening sea-watches from the Klinka Club (34 in all—the tallies being light-morph adult 24; dark-morph adult, 6; and all-brown juvenile, 2); 2 adults and a juvenile on BBI; a light-morph adult twice on Stack 5 (where I had seen 2 light-morph possibles in 1972); a light-morph adult off Mars Bay; and a dark-morph adult on Stack 12 in Pillar Bay.

In March 1990, Dr and Mrs N. P. Ashmole and I (as members of the ICBP Seabirds Specialist Group's "Seabirds on Islands" team) visited Ascension together with the ABWS's expedition "Exercise Booby II" (leader Major R. H. J. Nash). The full results of this visit have still to be collated but there were some 30 *S. sula* sightings during evening sea-watches conducted off the north and and northeast coasts by members of the ABWS party, mostly of light-morph birds (but including a probable all-brown juvenile seen by me on 10 March). At least one adult was seen on one of the stacks in Pillar Bay (where a dark-morph adult was photographed in October 1989 by Sam Turtle, a resident on the island), 2 light-phase adults on or near Stacks 4 or 5, and an all-brown juvenile on Stack 5.

Nine light-morph and 4 dark-morph adults were counted during a boat trip around BBI on 16 March (R. H. J. Nash, N. P. Ashmole). From Weatherpost on 24 March, between 10.30 and 12.00 hrs, through a telescope, I myself located 3 light-morph adults on BBI—2 on the northwest cliffs and one in flight; there was no sign of breeding. No birds, however, were located on the west and northwest cliffs of BBI from Hummock Point on 26 March, between 11.00 and 11.40. At about the same time, members of an American party from the University of Georgia, collecting marine specimens, saw 4–5 *S. sula* (all but one light-morph adults) on the south cliffs to the west of the landing. With 2 of these birds was a large chick in the down-shedding stage assumed to be their offspring (Dr J. C. Avise). No *S. sula* were seen at the colonies of *S. leucogaster* at Stacks 1 and 2 where I again mostly worked in 1990, or elsewhere in the GT area, but, in addition to the ABWS sightings, 3 adult *S. sula* were found on Stack 4 at dawn on 4 April by N. P. and M. J. Ashmole—a lone dark-morph adult and an apparent light-morph/dark-morph pair (which were seen to copulate), the first definite record of such a mixed-morph couple at Ascension.

Discussion

In spite of earlier misgivings, it is clear that *S. sula* is still surviving at Ascension Island. Further, the presence of free-flying sub-adults and juveniles and records of probable unfledged young indicates that breeding, by some pairs at least, continues there and is successful at times, with a total population still of the same small size as that reported by the BOU Centenary Expedition in 1957–59. Recent sightings of birds away from BBI—on stacks in Pillar Bay and south of English Bay—suggest that the species may even be in the process of expanding its range at Ascension. Although, like the majority of the indigenous seabirds, *S. sula* is still excluded from the main Island by feral cats (the unchecked presence of which remains a continuing conservational disgrace), there is every reason to believe that this booby will continue to exist at Ascension provided that its small population (on BBI especially) is not adversely affected by the increasing activities of man following the establishment of an RAF base and the expansion of the aiport in the 1980s.

Nevertheless, still very little is known about the true status and activities of *S. sula* at Ascension, all studies there to date (including the present one) having been essentially superficial in nature. No one in recent decades has even located a nest let alone seen a bird certainly sitting on one, or feeding a nestling or juvenile—for, like *S. leucogaster* at Ascension (Simmons 1967a, 1970), the young *S. sula* must return to its birth site for parental feeding for a long and adaptively variable period extending over many weeks or months after fledging. We have little idea of the daily routines of the adults nor, for example, the variation in size of the population present on the cliffs of BBI from hour to hour, day to day, or longer. The dark-morph birds now seem to form only a small minority in the population (an apparent change since 1957–59) but, as they are less easy to record, they may well be significantly overlooked; nor do we have any information on whether they follow a different feeding strategy from the light-morph birds—being more nocturnal for instance, in keeping with their plumage-type (see Simmons 1972). What is needed is an extended monitoring of the visible cliffs of BBI from the main Island, with a mapping of occupied perching and nesting places, for all the months of the year. This could be supplemented by surveys from the sea when conditions are favourable, observations from BBI itself (officially prohibited at present) being largely ineffective. Though such a programme would best be conducted by a dedicated resident at Ascension, much could still be achieved by visiting teams of ornithologists if their efforts were efficiently co-ordinated.

Ashmole (1963) propounded the acceptable view that the *S. sula* seen on BBI during 1957–59, and perhaps also the larger numbers recorded nearby in 1945, were the descendents of the original Ascension population which had once also occupied the main Island itself. It seems to me that, in the absence of any direct evidence of immigration, the Ascension *S. sula* could best be considered as comprising a resident endemic deme differing from all other populations of the species in the South Atlantic by its unique cliff-nesting habits. Ashmole also thought that it was improbable that the (apparent) influx in 1945 was due to long-distance immigration from the islands of Fernando Norhona or South Trinidad (Trindade), both some 1300 miles from Ascension, to the northwest and southwest respectively. One or both of these places, where the species is solely a tree-nester, was later again suggested as the origin of Tomlinson's birds (Olson 1977, den Hartog 1987) and even of the present population at Ascension (den Hartog). Fernando Norhona was favoured by Olson (because of increased human disturbance there during the Second World War), south Trinidad (where the *S. sula* population had crashed owing to the distruction of trees) by den Hartog, who also attributed the recent build-up of numbers at Fernando Norhona to emigration from South Trinidad. Wholly underestimating the predatory powers of the feral cats at Ascension, den Hartog further suggested that the Island's original population had probably been extirpated during the last century, not by the cats but by man himself.

Any objections to the immigration theory on the basis of the great distances involved must now flounder, for significant long-distant movements of *S. sula* have been recorded in the Pacific (references in den Hartog 1987) and single vagrants of this species have occured in Norway (in June 1985, Bentz 1988) and on Cima, Cape Verde Islands (in August 1986, den Hartog). So it is not entirely improbable that as suggested by den Hartog, we are dealing with a single pan-oceanic, inter-island travelling population of *S. sula* in the tropical South Atlantic. The question must remain open, however, but on balance I still favour the more conservative view that the Ascension birds form a distinctive long-standing and isolated population of the species.

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Presumed breeding of Tawny Pipits *Anthus campestris* in the Afrotropics

by J. S. Ash & J. E. Miskell

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A male Tawny Pipit *Anthus campestris* with advanced gonads is mentioned for Somalia in Ash & Miskell (1983, 1988). This particular bird was one of several pale pipits seen resembling *A. campestris* in the northern part of the country in May 1979, and one of 2 of which were collected. Because such records were particularly interesting and unlikely to be rechecked in the field in the foreseeable future, the 2 specimens were deposited in the British Museum (Natural History), Tring. Identification as *A. campestris* was confirmed after comparison with other material, and agreed by P. R. Colston, who kindly twice rechecked and reconfirmed this at our request. Collecting details of the 2 specimens are as follows: Ref. 650, ♂ 1 May 1979 at 5 km SW of Bacaadaweyn (7°09′N, 47°31′E), testes 5 mm—BM Registration No. 1982/3/15; Ref. 691, ♂ 15 May 1979 at 37 km WSW of War Idaad (9°10′N, 45°59′E), testes 7 mm—BM Registration No. 1980/7/5.

Field observations

A bird similar to the one collected on 15 May was seen on the same day at 4 km WSW of War Idaad (9°17′N, 46°13′E). Next day 2 pairs were actively nest-building at 19 km east of War Idaad (9°19′N, 46°25′E). There was no doubt that all these birds were the same species, but we were not entirely certain at the time that they were Tawny Pipits.

Further birds, possibly the same species, but not described in sufficient detail for later reassessment, were common on 3 May at a lake 6 km west of Oog (8°56′N, 46°34′E), between War Idaad and Bacaadaweyn; the nest of one of these pairs contained 3 eggs on a revisit on 23 May. A further 2 were seen 35 km south of Garadag at 9°12′N, 46°45′E also on 23 May. During the 3 weeks 3–23 May 1979, travelling through central northern Somalia to the east of the area in which the above Tawny Pipits occurred, and further east still in April and May 1980, pipits which presented identification difficulties were seen at a number of sites. Some of these birds were claimed as *novaeseelandiae*, including pale greyish birds near Eil (7°59′N, 49°49′E), but others were not identified.

A combination of 2 pairs nest-building in May of a species which usually leaves the area on return passage north by the end of March, together with 2 males with developed gonads, would seem to indicate at least intent to breed. May is also the breeding season for *novaeseelandiae* in northern Somalia. However, birds recorded under *A. novaeseelandiae* by Ash & Miskell (1983) from squares 21c and 28b, and breeding in 28b, should be deleted pending confirmed identification of this species in that area.

Status of Tawny Pipits in the eastern Afrotropics and Arabian peninsula

Somalia. Sir Geoffrey Archer found Tawny Pipits only twice during his long stay in north Somalia (ex British Somaliland), but summarised the other records in Archer & Godman (1961). Among these, of special interest are records of 7 and 3 being collected on 1–6 and 28 February 1919 respectively at Las Khorei (*sic*) (= Laasqoray) (11°09′N, 48°12′E) on the northern coast. In the country as a whole Tawny Pipits are regarded as fairly common Palaearctic migrants overwintering regularly south to 9°N, and occasionally as far south as 1°N (Ash & Miskell 1983). Our latest spring date for a returning migrant is 11 March, but Witherby & Hamerton (1905) have a later record on 1 April. There has been no previous suspicion of breeding in the country.

Ethiopia. Described by Urban & Brown (1971) as an abundant winter visitor in the north, extending south to Addis Ababa and the Rift Valley. J.S.A. found that it was uncommon in the southern part of its range as far as 7°N, and altogether absent in western areas south of 12°N. With the exception of a record in June (Ash 1980), a date perhaps indicating a possible breeding bird, there are no dates for migrants remaining after early April. The latest are 7 April (Blanchard 1969) and 8 April (Ash 1980).

Kenya. A scarce and probably extralimital Palaearctic migrant, October–March, to as far south as c. 3°50′S (Britton 1980, Lewis & Pomeroy 1989). The possibility that *campestris* breeding in the Afrotropics may reach Kenya as an intratropical migrant should be borne in mind.

Sudan. A fairly common Palaearctic migrant winter visitor, October–April, south to 11°N, but only exceptional further south (Nikolaus 1987).

Arabian Peninsula. Meinertzhagen (1954) regarded *campestris* as a winter visitor only, and not uncommon. More recently M. C. Jennings regarded it as quite common, and furthermore has 2 records from western Saudi Arabia which suggest that birds were holding breeding territories: on 5 March 1986 there were paired singing males holding territory at

Harrat Khaybar (25°40′N, 40°00′E), and in April 1989 there was a pair "faithful to one area" at Hemma Fiqrah (24°18′N, 38°53′E). In Jennings' experience Tawny Pipits do not sing in their winter quarters in Arabia.

Discussion

A. campestris is a reasonably common winter visitor to the northeast of the Afrotropical region, extending furthest south in the eastern part of its range. Breeding in Africa is known to occur only in the northwest in Morocco, Algeria and Tunisia, south to 27°N; but further to the east breeding is unknown south of 30°N, in Israel and Jordan (Cramp 1988, Hollom *et al.* 1988). There has been no suggestion that breeding occurs elsewhere in the region of the Afrotropics under discussion, nor in the area to its north covering Egypt and the Arabian peninsula—with the possible exception of the birds seen by Jennings. Breeding in Somalia, some 2400 km away from the Tawny Pipits nearest breeding area in the Palaearctic, could be of irregular occurrence only, although the possibility of breeding in Arabia suggests that breeding distribution may be less discontinuous than it has so far appeared to be.

The situation in Somalia requires further study. It may be significant that there are no specimen records of *novaeseelandiae* east of the above May records of *campestris*. The observation of pale rather *novaeseelandiae*-like birds in eastern N. Somalia suggests that there is either a pale population of *novaeseelandiae* in the area, or else that *campestris* replaces *novaeseelandiae* there.

A. campestris can easily be overlooked in areas where other large *Anthus* species, such as *novaeseelandiae, leucophrys* and particularly *similis* occur, all of which can present special problems in identification. Our N. Somalia specimens of *campestris* are considered by Colston to be intermediate between *A. c. griseus* and *A. c. campestris*.

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Harrier-like hunting behaviour by a Crane Hawk *Geranospiza caerulescens*

by Fabio Olmos

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The Crane Hawk *Geranospiza caerulescens* is widely distributed in a number of subspecies from Mexico to Argentina, living in various habitats, from rain forest to mangroves, but generally near water (Brown & Amadon 1968: 376–378). Recent literature (Brown & Amadon 1968: 378, Sick 1985: 214) emphasizes that this hawk explores cavities and crevices in bark, trunks and epiphytes with its feet and bill for food. The anatomical structure of the hind limbs is specially adapted for this (Burton 1978).

On 6 September 1988, at c. 08.00 hrs I observed a Crane Hawk foraging along a dry mud strip with scattered herbs alongside the Transpantaneira Highway (c. 56°59′W, 17°16′S), Mato Grosso, Brazil. For a general description of the area see Schaller & Crawshaw (1982).

When first seen, the hawk was hanging motionless about c. 3 m above the ground, looking directly downwards, facing into the strong prevailing wind. Suddenly the hawk dropped with half folded wings, spiralling down through 360° before landing and grasping a small item (probably an insect) with its left foot, which it picked at with its bill and swallowed. After looking around for a few moments the hawk walked 2 steps and jumped, opening its wings and gaining height by facing the wind, without flapping its wings. At a height of 2–3 m the hawk managed to progress forward by only slightly adjusting its wings, progressing slowly for a few metres before dropping again.

This process was repeated 6 times along a 30 m stretch. In 5 instances small items (probably insects or small frogs) were caught; in one the hawk landed on a pile of dry skin and hairs left from a mammal carcass and examined it briefly with the bill. At this point the hawk detected me and flew away with strong wing beats.

Sutton (1954) writing about the northern form *G. c. nigra* (once considered a full species) reported seeing this hawk hunting on the wing over open ground like a harrier. This hunting method appears not to have been reported since, most of the recent works on the feeding behaviour of the species dealing with the burrow and crevices exploring habit. My observations agree with Sutton and show that over the open fields of the Pantanal this species may hunt this way. In addition, I have seen this species visiting a carcass (perhaps looking for insects), feeding behaviour which apparently has not been reported since Carriker (1910).

Although these foraging strategies appear to be rarer than crevice exploring, in some habitats they may be just as important for the species, specially in open areas like the Pantanal. It is interesting to remember that individual specializations in hunting techniques seem to occur frequently among the Falconiformes, variations which probably have adaptive value, allowing exploitation of resources which are rarely or never used, thus avoiding inter-specific competition.

Acknowledgements

I wish to thank A. C. Neves for his assistance with fieldwork and the Instituto Brasileiro de Desenvolvimento Florestal (IBDF) for logistical support.

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BOOKS RECEIVED

Ridgely, R. S. & Tudor, G. 1989. *The Birds of South America. The oscine passerines*. Pp. 516. 31 colour plates. Over 700 distribution maps. Oxford University Press. Hard covers. £45.00. 250 × 175 mm.

This is the first of a projected 4 volume field handbook, covering over 700 species, all the true songbirds of South America's rich avifauna, with a wealth of detail on specific and differential identification, derived from personal examination of over 95% of the species and subspecies known, together with their habitats, behaviour and range. Subspecies are mentioned under identification for purposes of distinguishing races in the field if possible. Introductory sections explain the plan of the book, describe the habitats and discuss the biogeography, migration (very briefly, so little in general is known) and conservation (with an annotated list of 46 songbirds considered to be at risk). The plates are of Guy Tudor's usual high standard and have been "meticulously researched for soft part colours and perching attitudes"; the size of the volume ensures that detail is readily seen. The plates are organised for assembling various genera and subgenera groups, and the sequence used in the book, from families down to species is "*not* necessarily an accurate reflection of present taxonomic thinking", harmlessly it is considered, since systematics is at present in such a state of flux. Opposite each plate the text discusses salient differential characteristics. There is a long, useful bibliography.

This first volume of a work covering so vast a continent, much of it not well known, some of it unexplored, ornithologically, is of significant importance when much of the habitat, especially tropical forest as always, is under such dire threat of despoliation and destruction. The authors are to be congratulated, and the succeeding volumes are much looked forward to.

Chapman, Abel. 1990. (First published 1889). *Bird-Life of the Borders*. Pp. 286. Spredden Northern Classics, The Spredden Press, 55 Noel Road, London N1 8HE. Cloth £16.95, paperback £9.95. 210 × 125 mm.

A nicely produced reprint of this well known book from the Natural History Society of Northumberland's first edition, including the illustrations, with an introduction relating a brief history of the author by Peter Davis of the Hancock Museum.

Stroud, D. A., Mudge, G. P. & Pinkowski, M. W. 1990. *Protecting Internationally Important Bird Sites*. Pp. 230. Many diagrams. Nature Conservancy Council. Paperback. £17.00. 295 × 210 mm.

A thorough "review of the EEC Special Protection Area network in Great Britain". The authors, who work in the ornithological branch of the NCC, diligently detail the rationale for the proposed UK network of Special Protection Areas (SPAs) and provide a mass of data, fairly concluding that the network will promote a better trusteeship of the UK's natural heritage. There are 7 appendices, which with the bibliography form two-thirds of the book. The 2 of most interest cover bird habitats within the SPAs, and the conservation needs of 48 vulnerable breeding species and 75 other migratory species.

As is usual with the NCC production, the format is forbidding, being broken down into numbered paragraphs and sub-paragraphs and sub-sub-paragraphs, not conducive to easy reading. The production could be less extravagant with advantage to the selling price.

Boyd, J. M. & Boyd, I. L. 1989. *The Hebrides*. Pp. 416. Profusely illustrated with colour and black-and-white photographs. Collins. Hardback. £30.00, paperback £12.95. 215 × 150 mm.

J. Morton Boyd and his son Ian have written a comprehensive and very readable account of the Hebrides for the New Naturalist series. The first part of the book deals with the ecosystem, including geology, climate, soils, sea life, dunes, crofting, woodland, moor and hill, and inland waters. The second part deals with the characteristics of particular islands, some grouped together for their mutual most prevalent types of fauna, such as wildfowl, seabirds and seals. The final part is more historical and related to people, describing the Islands naturalists and historians, followed by the changing land usage, minerals and fisheries, and finally conservation and its various requirements. There is a good bibliography and a detailed index. Well researched and with much personal knowledge, the book is a mine of information eessential for anyone interested in these still mostly unspoilt but threatened islands.

Fuller, R. J. & Warren, M. S. 1990. *Coppiced Woodlands*.
Warren, M. S. & Fuller, R. J. 1990. *Woodland Rides and Glades*. Each 36 pp. with diagrams and coloured photographs. Nature Conservancy Council. Paperback. £2.50 each. 210 × 150 mm.

These 2 booklets are written to advise on the management of these 2 habitats for wildlife and serve their purpose simply and well. The photographs are informative and decorative.

Fandiño-Mariño, J. H. 1989. *The Sound Communication of the Guira Cuckoo, an eco-ethological and evolutionary evaluation*. (In Portuguese). Pp. 302. Diagrams and sonagrams. Unicamp, Brazil. No price. 210 × 140 mm.

Guira guira vocalisations studied on the campus of the University Estadual de Londrina in Paraná, Brazil and in captive birds are analysed and discussed with some somewhat complex theorising.

NOTICE TO CONTRIBUTORS

Papers, from Club Members or non-members, should be sent to the new Editor to be nominated at the AGM, Dr D. W. Snow, Old Forge, Wingrave, Aylesbury, Bucks, HP22 4PD, U.K., and must be offered solely to the *Bulletin*. They should be typed on one side of the paper, with **treble**-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper*. Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*. Informants of unpublished observations should be cited by initials and name only, e.g. "... of grass (C. Dieter)", but "P. Wee informs me that ...". A limited number of photographic illustrations in black-and-white may be published annually at the Editor's discretion. Authors are requested to give their title, initials, name and full address at the end of the paper.

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A contributor is entitled to 10 free offprints of the pages of the *Bulletin* in which his contribution, if one page or more in length, appears. Additional offprints or offprints of contributions of less than one page may be ordered when the manuscript is submitted and will be charged for. Authors may be charged for proof corrections for which they are responsible.

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CONTENTS

Page

EARL OF CRANBROOK. The EEC and nature conservation 165

CLUB NOTES 167

BARROWCLOUGH, G. F. & ESCALENTE-PLIEGO, Patricia. Notes on the birds of the Sierra de Unturán, Southern Venezuela 167

VINCENT, J. The type locality of the Barred Owl *Glaucidium capense* 170

da SILVA, J. M. C. Description of a new subspecies of *Saltator aurantiirostris*, with comments on *S. maxillosus* 171

PARKES, K. C. A critique of the description of *Amazona auropalliata caribaea* Lousada, 1989 175

MEES, G. F. & MEES-BALCHIN, V. J. *Basileuterus flaviolus* (Baird) in Guyana .. 179

STRONACH, N. The occurrence of the Grass Owl *Tyto capensis* and Richard's Pipit *Anthus novaeseelandiae* in the lowlands of New Guinea 181

STOTZ, D. F. The taxonomic status of *Phyllomyias reiseri* 184

GONZAGA, L. P. & PACHECO, J. F. Two new subspecies of *Formicivora serrana* (Hellmayr) from southeastern Brazil, and notes on the type locality of *Formicivora deluzae* Ménétriés 187

HEDENSTRÖM, A., BENSCH, S., HASSELQUIST, D. & OTTOSSON, U. Observations of Palaearctic migrants rare to Ghana 194

STRONACH, N. New information on birds in Serengeti National Park, Tanzania 198

OLMOS, F. & RODRIGUES, M. Courtship display of the Long-trained Nightjar *Macropsalis creaga* 203

PARKER, J. G. Imperial Eagles 205

HAZEVOET, C. J. Notes on new and rare migrants in the Cape Verde Islands 207

SIMMONS, K. E. L. The status of the Red-footed Booby *Sula sula* at Ascension Island 213

ASH, J. S. & MISKELL, J. E. Presumed breeding of Tawny Pipits *Anthus campestris* in the Afrotropics 222

OLMOS, F. Harrier-like hunting behaviour by a Crane Hawk *Geranospiza caerulescens* 225

BOOKS RECEIVED 226

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BULLETIN

of the

BRITISH
ORNITHOLOGISTS' CLUB

EDITED BY

Dr J. F. MONK

Volume 110
1990

EDITOR'S VALEDICTORY PREFACE

I am glad to take this opportunity to place on record my profound thanks to the Club for the honour they paid me in altering the Rules so that I could continue to edit the *Bulletin* at the end of my second stint, thus enabling me to have the pleasure of completing 15 volumes.

I am especially pleased also to pay tribute to our Chairman, Ronald Peal, who in his present capacity and during his unprecedented 18 years as Hon. Secretary has been for me a ready and invaluable adviser, as well as tirelessly considering the good of the Club and the *Bulletin*, which have so flourished under his now 20 years of guidance. It is not realised by many that when Ronald became Hon. Secretary in 1971, the membership was only 229, finances were chronically strained and dinners attended by only a few. Very largely due to his initiatives and recruitment and to his provision of so many good speakers, the membership when he moved on to become Chairman in 1989 was near to having been trebled, of which 226 were from overseas—itself a figure almost exactly the same as the total membership when he first took office—while the finances were averaging an annual surplus of over £2000. It is hoped that fulsome recognition of Ronald's tremendous contribution to the Club will be recognised during his Chairmanship of the centenary celebrations in October 1992.

It is most welcome that Dr David Snow has agreed to take on the editorship of the *Bulletin*. A well disguised old Etonian (he was a classical scholar), his eminence in the zoological world is well known through his continuing scholarship in all branches of ornithology. Widely read and travelled, author and writer of lucid English, David, besides being involved with several international ornithological bodies, has occupied the most senior posts of our national societies, including being Director of Research for the British Trust for Ornithology, Officer in Charge of the Bird Section of the BMNH at Tring, Editor of *Ibis* and President of the BOU. The Club is most fortunate to have acquired his expertise to edit the *Bulletin*, and I hope that he will find as much satisfaction in the fulfilment as I have done.

At the BOU's Centenary Dinner in Cambridge, R. E. Moreau said that on taking on the *Ibis* he had quite falsely been warned that he would now lose all his friends. I can vouch for such pessimism as being quite unfounded. In the 60s, indeed, I was castigated for editing *Ibis* badly "in long hand from the depths of the country"; but I have found that without exception, and that now includes the above critic, ornithological authors are an amiable breed. To them all I am grateful for their friendliness and cooperation, authors and referees alike, and I may add readers, for quite a few have written to show an appreciation of the *Bulletin*'s contents, a rare enough event to prove highly morale raising.

We are indebted to John Elgood, with Mrs Mary Muller's help, for producing the Index as satisfactorily as usual, and to the Hon. Secretary and the Chairman and Hon. Treasurer for providing the membership list and the changes thereto. I am, too, grateful to our printers, Henry Ling, most especially to Frank Hemmings, who has continued patiently to tolerate any shortcomings that I have shown during the year.

Finally I would echo a thought of that unorthodox American poet, Ogden Nash, who has a typical eccentric poem decrying his failure to become a birdwatcher:

> "a bird in the open never looks
> like its picture in the reference books",

and finishes with sad humility:

> "But I sometimes visualise in my gin
> the Audubon that I audubin."

James Monk
Goring-on-Thames
April 1991

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Deaths

The Committee very much regrets to report the deaths of the following Members (see Report of the Committee for 1990): Dr G. Beven (Member 1948–1990, Committee 1954–1958, 1975–1977, Vice-Chairman 1977–1980), R. D. Etchécopar (Member 1952–1990), J. E. Jany (Member 1958–1990).

Resignations in respect of 1990

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BRITISH ORNITHOLOGISTS' CLUB

(Founded 5 October 1892)

TITLE and OBJECTS

The objects of the Club, which shall be called the "British Ornithologists' Club", are the promotion of scientific discussion between Members of the British Ornithologists' Union and others interested in ornithology, and to facilitate the publication of scientific information connected with ornithology.

RULES

(Approved by the Annual General Meeting on 10 May 1988)

MEMBERSHIP

(1) (a) Any Member of the British Ornithologists' Union may become a Member of the Club on payment to the Honorary Treasurer of the annual subscription.

(b) A Member who ceases to be a member of the British Ornithologists' Union shall also cease to be a Member of the Club, unless the Committee shall decide it is in the interests of the Club to permit him to remain a Member.

(2) A Member who has an unbroken membership of the Club for fifty years shall become a Life Member and shall not be required to pay any further annual subscriptions.

(3) If the conduct of any Member shall be deemed by not less than five members of the Committee present at a meeting of the Committee to be prejudicial to the interests of the Club, that Member shall (a) be so informed by a letter from the Honorary Secretary and (b) be given an opportunity of appearing in person before the Committee to explain his conduct. The Committee shall have power to terminate his membership forthwith (i) if not less than five members of the Committee present when he appears before it are not satisfied with his explanation, or (ii) if he does not appear before the Committee in person, but gives an explanation which not less than five members of the Committee deem to be unsatisfactory, or (iii) if no explanation has been received from him within twenty-eight days of the dispatch of the Honorary Secretary's letter to him.

MANAGEMENT

(4) The affairs of the Club shall be managed by a Committee, elected from among the Members, which shall consist of a Chairman, elected for a term of four years, a Vice-Chairman, elected for a term of four years, an Editor of the *Bulletin,* elected for a term of four years, an Honorary Secretary, elected for a term of one year, and an Honorary Treasurer, elected for a term of one year. There shall be four other members of the Committee, each of whom shall be elected for a term of four years. With the exception of the Editor, the Honorary Secretary and the Honorary Treasurer, the Officers and other members of the Committee shall be ineligible for re-election within one year to the same office or position. For the purpose of this Rule, the period of a year shall be reckoned from one Annual General Meeting until the next, or, in the case of an Officer or other member of the Committee elected at a Special General Meeting, from that Special General Meeting until the next Annual General Meeting. The term for which an Officer or other member of the Committee is elected shall expire at the close of the Annual General Meeting, unless it is adjourned, in which case it shall expire at the first adjournment after the election of a successor. Except as otherwise provided by these Rules, a quorum of the Committee shall be three members.

(5) The names of Officers and other members of the Committee nominated by the Committee shall be circulated at least three weeks before the relevant Annual or Special General Meeting. Any Member wishing to nominate a candidate shall forward to the Honorary Secretary his nomination in writing signed by himself and another Member with confirmation that the candidate has agreed to be nominated. Such nomination shall reach the Honorary Secretary not less than 14 days before such a General Meeting. Elections shall be by a simple majority of those present and voting at a General Meeting.

(6) A Member wishing to complain of the manner in which affairs of the Club are conducted must communicate his complaint in writing to the Chairman, who will raise the complaint as soon as practicable at a meeting of the Committee for a decision or, if he considers it a matter of urgency, will call a meeting of the Committee specially to consider it.

SUBSCRIPTION

(7) The rate of annual subscription shall be fixed by the Committee from time to time. The subscription shall be due for payment on the first day of January in every year. The Committee shall be entitled to terminate the membership of any Member whose subscription has not been paid within six months of it falling due, provided that such member has been given written notice by the Honorary Treasurer calling upon him to pay the subscription and has not complied with that notice within one month of its date.

(8) When any Member, who is not an Officer or other member of the Committee, has rendered or is rendering the Club any service, the Committee may, if it deems it appropriate, waive the subscription due from that Member for any year or years.

(9) Members joining the Club in October, November or December may elect for their first annual subscription to run until the end of the next calendar year.

MEETINGS

(10) The Club shall meet not less than four times a year at times and places to be arranged by the Committee, in furtherance of the Objects of the Club.

(11) Members may introduce guests at any ordinary meeting of the Club and members of the British Ornithologists' Union who are not Members of the Club may, without any such introduction be permitted at the discretion of the Honorary Secretary to attend any one ordinary meeting during any calendar year, except that no former Member, who has had his membership terminated for any cause and who has not been reinstated, shall be allowed to attend a meeting without the permission of the Chairman or, in his absence, the Vice-Chairman.

(12) The Annual General Meeting of the Club shall be held in April or May every year on a date to be fixed by the Committee. At this Meeting the business to be transacted shall be to receive and consider the Report of the Committee and the Accounts of the preceding calendar year, the regulation of matters having reference to the *Bulletin,* the election of Officers and other members of the Committee and any other business of which notice in writing shall have been given to the Honorary Secretary prior to 28 February in th same year. Notice of at least three weeks shall be given by the Committee of every Annual General Meeting.

(13) A Special General Meeting may be called by the Committee for any purpose which it deems to be of sufficient importance or at the instance of a requisition signed by at least 15 Members, stating the purpose for which the Meeting is being requisitioned and sent to the Honorary Secretary. Notice of at least three weeks shall be given of a Special General Meeting and the notice convening it shall state the purpose of the Meeting: no other business may be transacted at the Meeting.

'BULLETIN' OF THE CLUB

(14) (a) A journal under the title of the 'Bulletin of the British Ornithologists' Club' shall be published not less than four times per year and one copy shall be distributed gratis to every Member who has paid the current annual subscription, subject to Rule 14 (b).

(b) Members shall receive copies of all issues of the *Bulletin* published in the year in which they join the Club provided they do not join in October, November or December and elect for their first subscription to run until the end of the next calendar year, in which case they shall receive copies of all issues published after their date of joining.

(15) No communication, the whole or any important part of which has already been published elsewhere, shall be eligible for publication in the *Bulletin*, except at the discretion of the Editor.

TRUST FUND

(16) Subject to the terms of any bequest or gift, any stocks, shares, other securities, money or other property (whether real or personal) from time to time belonging to the Club may be vested in trustees for the Club if the Club shall by a Special Resolution so decide. Such Special Resolution shall appoint Trustees and shall specify the trusts under which the property is to be held.

AMENDMENT OF RULES

(17) These Rules or any of them may be revoked or amended and any new rule or provision may be substituted or added by a Special Resolution.

INTERPRETATION

(18) In these Rules a "Special Resolution" means a resolution passed by a majority of not less than three fourths of the members voting thereon at an Annual or Special General Meeting of the Club of which not less than two weeks' notice specifying the intention to propose the resolution as a Special Resolution has been given.

(19) In these Rules "Member" means a Member of the Club, unless the context otherwise requires.

LIST OF AUTHORS AND CONTENTS

ALSTRÖM, P., COLSTON, P. R. & OLSSON, U. Description of a possible new species of leaf warbler of the genus *Phylloscopus* from China 43
ALSTRÖM, P. & OLSSON, U. Taxonomy of the *Phylloscopus proregulus* complex 38
ASH, J. S. & GULLICK, T. M. *Serinus flavigula* re-discovered 81
——— Field observations on the Degodi Lark *Mirafra degodiensis* 90
ASH, J. S. & MISKELL, J. E. Presumed breeding of Tawny Pipits *Anthus campestris* in the Africotropics 222
BAKER, E. M. See BAKER, N. E.
BAKER, N. E. & BAKER, E. M. A new species of weaver from Tanzania 51, 112
BARROWCLOUGH, G. F. & ESCALENTE-PLIEGO, P. Notes on the birds of Sierra de Unturán, Southern Venezuela 167
BENSCH, S. See HEDENSTRÖM, A.
BEGE, L. A. R. & PAULI, B. T. Two birds new to the Brazilian avifauna 93
BERRUTI, A. On two indeterminate shearwaters from South African waters 66
BOOKS RECEIVED 59, 111, 226
BUDEN, D. W. Report on the birds collected during the Armour-*Utowana* West Indian Expeditions 14
CABOT, J. First record of *Upucerthia validirostris* from Bolivia and new Bolivian distribution data 103
CLANCEY, P. A. The Namibian subspecies of *Cisticola chiniana* (Smith), 1843 . . . 83
—— Variations in *Pterodroma brevirostris* (Lesson), 1831 86
—— Further on the raptor name *Circaetus fasciolatus* 110
—— Size-variation and post-breeding movement in the Didric Cuckoo *Chrysococcyx caprius* (Boddaert) 130
—— Comment on the geographical variation of the Malachite Kingfisher of the Afrotropics 137
CLUB NOTES
    Report of the Committee for 1989 3
    Annual General Meeting, Chairman's Address, Accounts 113
    Meeting reports 5, 61, 114, 167
COLEBROOK-ROBJENT, J. F. R. The nest and eggs of Bannerman's Blue-headed Sunbird *Nectarinia bannermani* 13
COLLINS, C. T. Intraspecific variation in the natal pterylosis of the Ochre-bellied Flycatcher *Myionectes (Pipromorpha) oleagneus* (Tyrannidae) 143
COLSTON, P. R. See ALSTRÖM, P.
DEN HARTOG, J. C. See OLSON, S. L.
DOWSETT, R. J. The gender of the avian genus *Batis* 109
DUCKWORTH, J. W. See SHELDON, R. C.
ESCALENTE-PLIEGO, P. See BARROWCLOUGH, G. F.
FARNSWORTH, S. J. See JOHNSON, E. D. H.
FJELDSÅ, J. Geographic variations in the Rufous-webbed Tyrant *Polioxolmis rufipennis*, with description of a new subspecies 26
FJELDSÅ, J. & JENSEN, H. A record of the African Piculet *Sasia africana* from Liberia 62
FRITH, C. B. & FRITH, DAWN W. The nest of the Mountain Firetail, *Oreosthruthus fuliginosus* (Estrildidae) in Papua New Guinea 35
——— Discovery of the King of Saxony Bird of Paradise *Pteridophora alberti* nest, egg and nestling, with notes on parental care 160
FRITH, DAWN W. See FRITH, C. B.
GONZAGA, L. P. & PACHECO, J. F. Two new subspecies of *Formicivora serrana* (Hellmayr) from southeastern Brazil and notes on the type locality of *Formicivora deluzae* Ménétriés 187
GOODMAN, S. M. See HAYES, F. E.
GRAVES, G. R. & ZUSI, R. L. Avian body weights from the lower Rio Xingu, Brazil 20
GULLICK, T. M. See ASH, J. S.
HASSELQUIST, D. See HEDENSTRÖM, A.
HAYES, F. E., GOODMAN, S. M. & LOPEZ, N. E. New or noteworthy bird records from the Matogrosense region of Paraguay 94

HAZEVOET, C. J. Notes on new and rare migrants in the Cape Verde Islands 207
HEDENSTRÖM, A., BENSCH, S., HASSELQUIST, D. & OTTOSSON, U. Observations of Palaearctic migrants rare to Ghana 194
HOLLOWAY, S. J. See KING, J. R.
HOLYOAK, D. T. The nest and eggs of *Phylloscopus budongoensis* (Sylviinae) 159
JENSEN, H. See FJELDSÅ, J.
JOHNSON, E. D. H. & FARNSWORTH, S. J. On the possible former breeding of the Red-footed Falcon *Falco vespertinus* in Algeria 7
KENNEDY, R. S. Notes on Philippine birds, 16. First records of the Red-tailed Tropicbird *Phaethon rubricauda* and Merlin *Falco columbarius* from the Philippines 107
KING, J. R. Polymorphism in *Diglossa humeralis aterrima* in southern Ecuador 77
KING, J. R. & HOLLOWAY, S. J. Notes on the Giant Hummingbird *Patagona gigas* in southern Ecuador 79
LOPEZ, N. E. See HAYES, F. E.
LOUETTE, M. The nightjars of Zaire 71
McALLAN, I. A. W. The Cochineal Creeper and the Fascinating Grosbeak: a re-examination of some names of John Latham 153
McGOWAN, R. Y. & PRITCHARD, J. S. Notes on Philippine birds, 15. First record of the Red-breasted Flycatcher *Ficedula parva* for the Philippines 6
MARCONDES-MACHADO, L. O. & MONTEIRO-FILHO, E. L. A. The Scarlet Ibis *Eudocimus ruber* in southeastern Brazil 123
MEES, G. F. & MEES-BALCHIN, V. J. *Basileuterus flaviolus* (Baird) in Guyana 179
MEES-BALCHIN, V. J. See MEES, G. F.
MISKELL, J. E. See ASH, J. S.
MONTEIRO-FILHO, E. L. A. See MARCONDES-MACHADO, L. O.
OLMOS, F. Harrier-like hunting behaviour by a Crane Hawk *Geranospiza caerulescens* 225
OLMOS, F. & RODRIGUES, M. Courtship display of the Long-trained Nightjar *Macropsalis creaga* 203
OLSON, S. L. Remarks on the osteology of the Madagascan warblers *Dromaeocercus* and *Amphilais* (Sylviidae) 9
OLSON, S. L. & DEN HARTOG, J. C. Former breeding of *Sula dactylatra* in the Cape Verde Islands 10
OLSSON, U. See ALSTRÖM, P.
OTTOSSON, U. See HEDENSTRÖM, A.
OUELLET, H. Notes on the iris colour in females of two manakins (Pipridae) 140
PACHECO, J. F. See GONZAGA, L. P.
PARKER, J. G. Imperial eagles 205
PARKES, K. C. A critique of the description of *Amazona auropalliata caribaea* Lousada, 1989 175
PAULI, B. T. See BEGE, L. A. R.
PEARMAN, M. Behaviour and vocalisations of an undescribed Canastero *Asthenes* sp. from Brazil 145
PRITCHARD, J. S. See McGOWAN, R. Y.
RODRIGUES, M. See OLMOS, F.
SCHMITT, C. G. & SCHMITT, DONNA C. First records of the White-tailed Nightjar *Caprimulgus cayennensis* in Ecuador 139
SCHMITT, DONNA C. See SCHMITT, C. G.
SHELDON, R. C. & DUCKWORTH, J. W. Rediscovery of the Madagascar Serpent-Eagle *Eutriorchis astur* 126
da SILVA, J. M. C. Description of a new subspecies of *Saltator aurantiirostris*, with comments on *S. maxillosus* 171
SIMMONS, K. E. L. The status of the Red-footed Booby *Sula sula* at Ascension Island 213
STOTZ, D. F. First specimen of *Drymophilla devillei* from Colombia 37
—— The taxonomic status of *Phyllomyias reiseri* 184
STRONACH, N. Habitat and distribution of the Rock-loving Cisticola *Cisticola aberrans* in the Serengeti National Park, Tanzania 32
—— The occurrence of the Grass Owl *Tyto capensis* and Richard's Pipit *Anthus novaeseelandiae* in the lowlands of New Guinea 181
—— New information on birds in Serengeti National Park, Tanzania 198

TYE, A. & TYE, HILARY. First description of the nest of the Golden-breasted Puffleg *Eriocnemis mosquera* 142
TYE, HILARY See TYE, A.
THOMAS, BETSY T. Additional weights of Venezuelan birds 48
VINCENT, J. The type locality of the Barred Owl *Glaucidium capense* 170
ZUSI, R. L. See GRAVES, G. R.

INDEX TO SCIENTIFIC NAMES

(Compiled by J. H. Elgood, with the assistance of Mary Muller)

All generic and specific names (of birds only) are indexed. New subspecific names are indexed in bold print under generic, specific and subspecific names. Other subspecies of special interest are also included.

CORRECTIONS TO TEXT

Page 25, Appendix—middle column 3 lines from foot: *chrysochloros* not *chysochloros*
Foot of right-hand column: *cayanensis* not *cayenensis*
Page 105, line 8: *Geositta* not *Gesitta*
Page 160, line 16: *ruficapilla* not *ruficapillus*
Page 163, line 22: *macgregorii* not *macgregoriae*
Page 183, line 11: *rubicunda* not *rubicundus*

aberrans, Cisticola 32–34
Accipiter gentilis 128
— henstii 126–129
— superciliosus 21
Acrocephalus arundinaceus 195, 197
— paludicola 195, 196
— schoenobaenus 195, 197
— scirpaceus 195
Actitis hypoleucos 195
— macularia 25, 49
adalberti, Aquila 205, 206
adsimils, Dicrurus 91
aedon, Troglodytes 50
aenea, Chloroceryle 22, 97
aeruginosus, Circus 208
aethiops, Myrmecocichla 200
afer, Francolinus 199
— , Nilaus 91
affinis, Veniliornis 22
africana, Sasia 62–63
— , Verreauxia 62
Agelaius icterocephalus 50
agilis, Oporornis 50
Aglaeactis cupripennis 142
Ajaia ajaja 124
ajaja, Ajaia 124
— , Platalea 104
alba, Gygis, 218
— , Tyto 17, 18
alberti, Pteridophora Plates 5–8, 160–163
albicapilla, Spreo 91
albescens, Synallaxis 49
albicollis, Leucopternis 25
— , Nyctidromus 22, 97
— , Saltator 50
— , Turdus 24
albifrons, Sterna 210
albinucha, Xenopsaris 49
albirostris, Galbula 22
albiventer, Tachycineta 25, 50 100
Alcedo cyanostigma 138
alinae, Nectarinia 13, 14
Amazilia fimbriata 49
— viridigaster 168
Amazona auropalliata caribaea *subsp. nov.* 175–179
Amazona farinosa 25
— ochrocephala 22, 175
— oratrix 175
amazona, Chloroceryle 22
amazonicus, Thamnophilus 23
americana, Chloroceryle 22
— , Mycteria 25
americanus, Daptrius 21
Ammodramus humeralis 50
Amphilais 9
Amphilais seebohmi 9, 10
analis, Formicarius 23
Anas rhynchotis 157
andinus, Phoenicoparrus 94
andrei, Taeniotriccus 21, 24
angolensis, Oryzoborus 24
angulata, Gallinula 199
Anhinga anhinga 25
ani, Crotophaga 18, 25
ankoberensis, Serinus 82
Anodorhynchus hyacinthinus 25, 96
Anous minutus 218
— stolidus 218
anthoides, Asthenes 147, 148
Anthracothorax dominicus 18
— nigricollis 25

Anthus caffer 201
Anthus campestris 196, 222–224
— leucophrys 224
— novaeseelandiae 181–183, 223, 224
— similis 224
— trivialis 210
Aquila adalberti 205–206
— audax 183
— clanga 206
— heliaca 205, 206
— pomarina 198
aquila, Fregata 216, 218
Ara ararauna 22
— chloroptera 25
— macao 22
— severa 22
aracari, Pteroglossus 22
Aramides cajanea 21
ararauna, Ara 22
Aratinga aurea 22
— leucophthalmus 22
arborea, Dendrocygna 16, 17
Ardea cocoi 21
Ardeotis australis 183
Arremon schlegeli 50
— taciturnus 24
Arremonops conirostris 50
arundinaceus, Acrocephalus 195, 197
Asio flammeus 210
assimilis, Puffinus 11, 66–70
Asthenes sp. Plates 3, 4, 145–153
Asthenes anthoides 147, 148
— baeri 105, 147, 149
— dorbigni 149, 150, 152
— hudsoni 147, 148
— humicola 148
— humilis 149, 151
— maculicauda 148
— modesta 147, 150
— patagonica 147, 148, 152
— punensis 148
— pyrrholeuca 147, 149, 151
— sclateri 147, 148
— steinbachi 147, 148
— urubambensis 148
— wyatti 148, 149, 150, 151
Astrapia mayeri 163
astur, Eutriorchis 126–129
Atalotriccus pilaris 50
ater, Daptrius 25
Athene cunicularia 17, 104
Atlapetes personatus 167
atratus, Coragyps 25
atrogularis, Serinus 81
atronitens, Xenopipo 169
Atticora melanoleuca 25
Attila cinnamomeus 24
— spadiceus 24
audax, Aquila 183
Augastes scutatus 152
augusti, Phaethornis 49
aura, Cathartes 25, 104
aurantiirostris, Catharus 50
aurantiirostris parkesi, Saltator *subsp. nov.* 172–174
— Saltator 171–174
aurea, Aratinga 22
— , Jacamerops 22
aureola, Pipra 141
aurescens, Polyplancta 22
auriculata, Zenaida 49
aurifrons, Picumnus 22
aurita, Conopophaga 23
— , Heliothryx 22
— , Zenaida 17, 18
auropalliata caribaea, Amazona *subsp. nov.* 175–179
australis, Ardeotis 183
Automolus infuscatus 23
— melanopezus 37
— rufipileatus 23
avosetta, Recurvirostra 194
axillaris, Myrmotherula 23

baeri, Asthenes 105, 147, 149
bannermani, Nectarinia 13–14
barbatus, Pycnonotus 91
Basileuterus flaveolus 179–180
batesi, Caprimulgus 71
Batis 109
berlepschi, Hylopezus 21, 23
biarmicus, Falco 64–65
bicolor, Tiaris 17
bidentatus, Harpagus 21
bifasciatus, Gymnostinops 24
binotatus, Caprimulgus 71
bitorquatus, Pteroglossus 22
boiei, Myzomela 153–154
bolivianus, Polioxolmis rufipennis *subsp. nov.* 30
bonariensis, Molothrus 25, 50
bonelli, Phylloscopus 195–198
borin, Sylvia 195
Botaurus stellaris 194
bourcieri, Phaethornis 49
bouvronides, Sporophila 50
Bowdleria punctata 10
brachypterus, Buteo 127
brachyura, Myrmotherula 23
brachyurus, Graydidascalus 25
Bradypterus luteoviridis 10
brevirostris, Pterodroma 86–90
brissonii, Cyanocompsa 50
Brotogeris chrysopterus 22
— jugularis 49
— versicolurus 97
brunneiceps, Hylophilus 24, 168–169
brunneiventris, Diglossa 77–78
brunneus, Dromaeocercus 9, 10
Bubulcus ibis 104
Bucco capensis 25
budongoensis, Phylloscopus 159–160
Bulweria bulwerii 11
bulwerii, Bulweria 11

burnieri, Ploceus *sp. nov.* Plate 1, 51–58
Buteo brachypterus 127
— buteo 64, 206
— magnirostris 25
Buteogallus urubitinga 25
Butorides striatus 25

Cacicus cela 24, 50
caerulea, Florida 124
— , Egretta 95
— , Polioptila 17
caerulescens, Geranospiza 225–226
caesius, Thamnomanes 23
caffer, Anthus 201
Cairina moschata 25
cajanea, Aramides 21
caledonica, Myzomela 153
Calidris canutus 209
— fuscicollis 49
— melanotos 49, 194
— minutilla 49
— pusilla 49
Calliphlox evelynae 14, 17
Camaroptera simplex 200
Campephilus melanoleucos 25
— rubricollis 23
campestris, Anthus 196, 222–224
Camptostoma obsoletum 24, 50
Campylopterus duidae 167
— largipennis 22
Campylorhamphus procurvoides 23
— trochilirostris 49
Campylorhynchus nuchalis 50
— turdinus 24,100
canaria, Serinus 41
cantans, Cisticola 200
cantator, Hypocnemis 23
— , Phylloscopus 45
cantillans, Sylvia 211
canutus, Calidris 209
capense, Glaucidium 170–171
capensis, Bucco 25
— , Noctua 170
— , Tyto 181–182
caprata, Saxicola 183
Caprimulgus batesi 71
— binotatus 71
— cayennensis 139
— clarus 71, 73
— climacurus 71, 72
— europaeus 75
— fossii 72–74
— fraenatus 75
— inornatus 75
— natalensis 71, 72, 74
— nigrescens 22
— nigriscapularis 71, 74
— pectoralis 71, 73, 74
— poliocephalus 71, 75
— rufigena 76
— ruwenzorii 71, 75
— tristigma 75
caprius, Chrysococcyx 130–136
Capsiempis flaveola 24
carbo, Ramphocelus 24, 50, 101
carbonaria, Diglossa 77–78
cardinalis, Certhia 155
— , Meliphaga 155
— , Myzomela 156
Carduelis crassirostris 106
caribaea, Amazona auropalliata, *subsp. nov.* 175–179
caribaeus, Contopus 17
castanops, Ploceus 56–58
castro, Oceanodroma 218
Cathartes aura 25, 104
— melambrotos 21
Catharus aurantiirostris 50
— fuscescens 50
— minimus 169
caudacutus, Sclerurus 23
cayana, Cotinga 25
— , Dacnis 25
— , Piaya 22
— , Tangara 50
cayanensis, Icterus 25
— , Leptodon 96
— , Myiozetetes 49
cayanus, Vanellus 22
cayennensis, Caprimulgus 139
— , Mesembrinibis 25
— , Panyptila 25
cela, Cacicus 24, 50
Celeus flavus 22
Centropus cupreicaudus 56
Cephalopterus ornatus 24
Cercomacra melanaria 98
— nigrescens 23
Cercotrichas galactotes 91
Certhia cardinalis 155
— chrysotis 157
— dibapha 154–155
— erythropygia 155
— sanguinolenta 154–156
Certhiaxis cinnamomea 49
Ceryle torquata 25
Chaetura cinereiventris 25, 49
chalybea, Progne 25, 50
cheela, Spilornis 127–128
Chelidoptera tenebrosa 22
cherriei, Synallaxis 21, 23
chilensis, Vanellus 48
chiniana, Cisticola 34, 83–86
Chiroxiphia lanceolata 49
Chloroceryle aenea 22, 97
— amazona 22
— americana 22
— inda 22
chloronotus, Phylloscopus 38–42, 43–47
Chlorophonia cyanea 169
chloroptera, Ara 25
— Myzomela 154
Chlorostilbon mellisugus 49
— ricordii 17

choliba, Otus 22
chrysochloros, Piculus 25
chrysochlorus, Chrysococcyx 134
Chrysococcyx caprius 130–136
— chrysochlorus 134
chrysopterus, Brotogeris 22
Chrysoptilus punctigula 49
chrysotis, Certhia 157
Ciccaba virgata 22
cinerascens, Circaetus 198
cinereiventris, Chaetura 25, 49
cinereum, Todirostrum 50, 99
cinnamomea, Certhiaxis 49
cinnamomeus, Attila 24
Circaetus cinerascens 198
— fasciolatus 110
Circus aeruginosus 208
Cisticola aberrans 32–34
— cantans 200
— chiniana 34, 83–86
— erythrops 200
— fulvicapilla 200
— juncidis 183
— natalensis 34
— robusta 200
Clamator glandarius 133
clanga, Aquila 206
clarus, Caprimulgus 71, 73
climacocerca, Hydropsalis 22
climacurus, Caprimulgus 71, 72
Cnemarchus 29
Cnemophilus macgregoriae 163
Cnemotriccus fuscatus 49
Coccyzus minor 18
— pumilus 49
Cochlearius cochlearius 95
cocoi, Ardea 21
Coeligena coeligena 49
Coereba flaveola 17, 18, 24, 50
coerulescens, Saltator 50
Colaptes melanochloros 98
Colibri serrirostris 104
collaris, Serinus 82
Colluricincla harmonica 183
collybita, Phylloscopus 3, 195–196
colma, Formicarius 23
Columba plumbea 22
— subvinacea 49
columbarius, Falco 108
Columbina passerina 18, 22
— talpacoti 49
communis, Sylvia 195
concolor, Dendrocolaptes 23
conirostris, Arremonops 50
Conopias inornata 49
Conopophaga aurita 23
— melanogaster 21, 23
Contopus caribaeus 17
Coragyps atratus 25
coraya, Thryothorus 24
coronatus, Onychorhynchus 24
— , Stephanoaetus 199
Corvus palmarum 18
— ruficollis 8
Coryphospingus pileatus 50
Corythopis torquata 24
Corythornis cristatus 137–138
Coscoroba coscoroba 96
Cotinga cayana 25
Cranioleuca demissa 49
— gutturata 25
crassirostris, Carduelis 106
— , Vireo 17
Crax fasciolata 21
criniger, Prinia 43, 45
cristatus, Corythornis 137–138
— , Tachyphonus 24
Crotophaga ani 18, 25
— major 22
— sulcirostris 49
Crypturellus variegatus 21
cunicularia, Athene 17, 104
cupreicaudus, Centropus 56
cupripennis, Aglaeactis 142
cuvieri, Falco 199
cyanea, Chlorophonia 169
— , Cyanocompsa 50
cyaneoviridis, Tachycineta 17
Cyanerpes sp. 25
Cyanocompsa brissonii 50
— cyanea 50
cyanoides, Passerina 24
cyanoleuca, Notiochelidon 50, 106
cyanostigma, Alcedo 138
cyanus, Hylocharis 25
Cyclarhis gujanensis 25, 50
Cymbilaimus lineatus 23

Dacnis cayana 25
— flaviventer 25
dactylatra, Sula 10–12, 213–218
Daptrius americanus 21
— ater 25
dea, Galbula 22
Deconychura stictolaema 23, 37
decoratus, Pterocles 199
decumanus, Psarocolius 24, 101
degodiensis, Mirafra 90–93
deiroleucus, Falco 96
Delichon urbica 196
deluzae, Formicivora 187–188
demissa, Cranioleuca 49
Dendrocincla fuliginosa 23, 49
— merula 23
Dendrocolaptes concolor 23
— picumnus 23
Dendrocygna arborea 16, 17
Dendroica petechia 15, 17, 50
devillei, Drymophila 37
dibapha, Certhia 154–155
— , Myzomela 153–154
dicolorus, Ramphastos 97
Dicrurus adsimilis 91
— forficatus 127

Diglossa brunneiventris 77–78
— carbonaria 77–78
— humeralis 77–78
dimidiata, Serinus 82
dinemelli, Dinemellia 91
Dinemellia dinemelli, 91
doliatus, Thamnophilus 49
dominicensis, Icterus 18
— , Tyrannus 18
dominicus, Anthracothorax 18
— , Tachybaptus 17
donaldsoni, Serinus 202
dorbignyi, Asthenes 149–152
Dromaeocercus 9
Dromaeocercus brunneus 9, 10
— seebohmi 9
Drymophila devillei 37
Dryocopus lineatus 23
duidae, Campylopterus 167

ecaudatus, Myiornis 24
Egretta caerulea 95
— intermedia 208
— thula 25, 124
Elaenia flavogaster 50
— parvirostris 50
— ruficeps 160
Elanoides forficatus 25
elegans, Xiphorhynchus 105
Emberiza poliopleura 91
Embernagra longicauda 152
Emblema 36
Empidonax euleri 24
episcopus, Thraupis 25
Eremomela flavicrissalis 91
— scotops 201
Eriocnemis 142
Eriocnemis glaucopoides 142
— luciani 142
— mosquera 142
erythrocephala, Pipra 140–141
erythrocercus, Philydor 23
erythrops, Cisticola 200
erythropus, Tringa 209
erythropygia, Certhia 155
erythrurus, Terenotriccus 24
Eudocimus ruber 123–125
euleri, Empidonax 24
Euphonia laniirostris 50
— violacea 24
Euplectes jacksoni 202
europaeus, Caprimulgus 75
Eurypyga helias 48
Euscarthmus meloryphus 50
Eutriorchis astur 126–129
evelynae, Calliphox 14, 17
eytoni, Xiphorhynchus 23

Falco biarmicus 64–65
— columbarius 108
— cuvieri 199
— deiroleucus 96
— rufigularis 21
— sparverius 16, 18
— subbuteo 199
— vespertinus 7–8
farinosa, Amazona 25
fasciatus, Myiophobus 49
fasciicauda, Pipra 24
fascinans, Loxia 156–158
— , Microeca 156
fasciolata, Crax 21
fasciolatus, Circaetus 110
ferox, Myiarchus 24, 49
Ficedula hypoleuca 195, 211
— parva 6–7
figulus, Furnarius 23
fimbriata, Amazilia 49
flammeus, Asio 210
flava, Motacilla 210
flaveola, Capsiempis 24
— , Coereba 17, 18, 24, 50
— , Sicalis 50
flaveolus, Basileuterus 179–180
flavicrissalis, Eremomela 91
flavigula, Piculus 22
— , Serinus 81–83
flavipes, Hylophilus 50
— , Tringa 48
flavirostris, Monasa 37
flaviventer, Dacnis 25
flaviventris, Tolmomyias 24, 49
flavogaster, Elaenia 50
flavus, Celeus 22
Florida caerulea 124
Fluvicola pica 49
forficatus, Dicrurus 127
— , Elanoides 25
Formicarius analis 23
— colma 23
Formicivora deluzae 187–188
— grisea 49, 168–169
— serrana 187–193
Formicivora serrana interposita *subsp. nov.* 189
— **serrana littoralis** *subsp. nov.* 191
Forpus passerinus 49
— xanthopterygius 96
fossii, Caprimulgus 72–74
fraenatus, Caprimulgus 75
Francolinus afer 199
Fregata aquila 216, 218
fulica, Heliornis 25
fuliginosa, Dendrocincla 23, 49
fuliginosus, Oreostruthus Plates 3 & 4, 35–36
fuligiventer, Phylloscopus 45
fulvicapilla, Cisticola 200
fumigatus, Turdus 24
furcata, Thalurania 22
Furnarius figulus 23
fusca, Meliphaga 157
fuscata, Sterna 213
fuscatus, Cnemotriccus 49

fuscatus, Margarops 17–18
fuscescens, Catharus 50
fuscicauda, Ramphotrigon 37
fuscicollis, Calidris 49
fuscus, Larus 196

galactotes, Cercotrichas 91
Galbula albirostris 22
— dea 22
— ruficauda 22, 49
galbula, Ploceus 57
Gallinago gallinago 195
— media 199
Gallinula angulata 199
genibarbis, Thryothorus 50
gentilis, Accipiter 128
Geositta rufipennis 105
Geothlypis rostrata 17
— trichas 17
Geotrygon montana 22
Geranoaetus melanoleucus 104
Geranospiza caerulescens 225–226
gigas, Patagona 79–80
gilletti, Mirafra 91–93
gilvus, Mimus 50
glandarius, Clamator 133
Glareola pratincola 209
glareola, Tringa 195
Glaucidium capense 170–171
Glaucis hirsuta 22, 49
glaucocolpa, Thraupis 50
glaucopoides, Eriocnemis 142
Glyphorhynchus spirurus 23
gouldii, Lophornis 21–22
gracilipes, Tyranniscus 24
Grallaria varia 23
Granatellus pelzelni 24
Graydidascalus brachyurus 25
grisea, Formicivora 49, 168, 169
griseicapillus, Sittasomus 23
griseogularis, Phaethornis 168
griseus, Nyctibius 25
grossus, Pitylus 24
Grus rubicundus 183
guainumbi, Polytmus 49
guarayanus, Thryothorus 101
Gubernetes yetapa 99
guira, Hemithraupis 24
gujanensis, Cyclarhis 25, 50
— , Odontophorus 21
— , Synallaxis 23, 98
gularis, Paroaria 24, 50
gundlachii, Mimus 14, 17
guttatus, Tinamus 25
— , Xiphorhynchus 49
gutturata, Cranioleuca 25
Gygis alba 218
Gymnomystax mexicanus 50
Gymnorhina tibicen 183
Gymnostinops bifasciatus 24
— yuracares 24
Gypopsitta vulturina 21, 22

Habia rubica 24
Haematopus palliatus 17
haliaetus, Pandion 16, 17, 25
harmonica, Colluricincla 183
Harpagus bidentatus 21
hauxwelli, Myrmotherula 23
heinrothi, Puffinus 66
heliaca, Aquila 205–206
helias, Eurypyga 48
Heliodoxa xanthogonys 49
Heliornis fulica 25
Heliothryx aurita 22
Hemithraupis guira 24
henstii, Accipiter 126–129
Herpsilochmus rufimarginatus 23
Heterocercus linteatus 24
heuglini, Ploceus 56
Hieraaetus pennatus 206
— spilogaster 198
Himantopus mexicanus 49
himantopus, Micropalama 49
Hippolais icterina 201
— pallida 195, 211
— polyglotta 195
hirsuta, Glaucis 22, 49
Hirundo rustica 50
hispaniolensis, Passer 8
hudsoni, Asthenes 147, 148
humeralis, Ammodramus 50
— , Diglossa 77–78
humicola, Asthenes 148
humilis, Asthenes 149, 151
hunteri, Nectarinia 91
hyacinthinus, Anodorhynchus 25, 96
Hydropsalis 205
Hydropsalis climacocerca 22
Hylocharis cyanus 25
Hylopezus berlepschi 21, 23
Hylophilus aurantiifrons 50
— brunneiceps 24, 168, 169
— flavipes 50
Hylophylax naevia 23
— poecilinota 23
— punctulata 23
Hypnelus ruficollis 49
Hypocnemis cantator 23
Hypocnemoides maculicauda 23
hypoleuca, Ficedula 195, 211
hypoleucos, Actitis 195

ibis, Bubulcus 104
icterina, Hippolais 201
icterocephalus, Agelaius 50
Icterus cayanensis 25
— dominicensis 18
— nigrogularis 50
Ictinia plumbea 25
ignobilis, Turdus 168
inda, Chloroceryle 22
Inezia subflava 24, 50
infuscatus, Automolus 23
inornata, Conopias 49

inornatus, Caprimulgus 75
— , Phylloscopus 44
inquisitor, Tityra 25
intermedia, Egretta 208
— , Sporophila 50
intermedius, Ploceus 56
interposita, Formicivora serrana *subsp. nov.* 189

Jacamerops aurea 22
Jacana jacana 48
jacarina, Volatinia 25, 50
jacksoni, Euplectes 202
javanica, Mirafra 183
jugularis, Brotogeris 49
juncidis, Cisticola 183
juninensis, Muscisaxicola 105
Jynx torquilla 196

kansuensis, Phylloscopus 38
katangae, Ploceus 56
Kaupifalco monogrammicus 198
kidderi, Pterodroma 88–89
kilimensis, Nectarinia 202
kirkii, Veniliornis 49
Knipolegus orenocensis 24
— poecilurus 168

lanceolata, Chiroxiphia 49
laniirostris, Euphonia 50
Lanius senator 195
lapponica, Limosa 209
largipennis, Campylopterus 22
Larus fuscus 196
— ridibundus 209
ledanti, Sitta 53
Lepidocolaptes souleyetii 49
Leptodon cayanensis 96
Leptotila rufaxilla 22
— verreauxi 22, 49
leucogaster, Sula 11, 12, 213, 217–220
leucomelas, Turdus 50
leuconota, Pyriglena 23, 99
leucophaea, Microeca 157
— , Sylvia 156–158
leucophrys, Anthus 224
— , Myrmoborus 23
leucophthalma, Myrmotherula 23
leucophthalmus, Aratinga 22
Leucopternis albicollis 25
— schistacea 21
leucopyga, Nyctiprogne 22
— , Tachycineta 100
leucorodia, Platalea 208
leucostigma, Percnostola 23
leucotis, Thryothorus 24
leucurus, Threnetes 22
lherminieri, Puffinus 16, 17, 66–70
lictor, Pitangus 25
Limosa lapponica 209
— limosa 194
lineatus, Cymbilaimus 23
— , Dryocopus 23
lineola, Sporophila 50
linteatus, Heterocercus 24
Lipaugus vociferans 24
littoralis, Formicivora serrana *subsp. nov.* 191
Locustella luscinioides 195–196
— naevia 195–196
longicauda, Embernagra 152
longipennis, Macrodipteryx 76
— , Myrmotherula 23
longipes, Myrmeciza 49
longirostris, Nasica 23
— , Rallus 17
Lophornis gouldii 21–22
Loxia fascinans 156–158
Loxigilla violacea 17
luciani, Eriocnemis 142
luctuosus, Sakesphorus 23
— , Tachyphonus 25
lugubris, Quiscalus 50
Lurocalis semitorquatus 22
Luscinia megarhynchos 195, 211
— svecica 195–197
luscinioides, Locustella 195–196
lutea, Sicalis 106
luteoviridis, Bradypterus 10
lyra, Uropsalis 204

macao, Ara 22
macconnelli, Pipromorpha 24
macgregoriae, Cnemophilus 163
Machetornis rixosus 49
Macrodipteryx longipennis 76
— vexillarius 76
Macropsalis 205
Macropsalis creaga 203–205
macularia, Actitis 25, 49
maculatum, Todirostrum 24
maculicauda, Asthenes 148
— , Hypocnemoides 23
maculipennis, Phylloscopus 45
maculirostris, Muscisaxicola 105
magnirostris, Buteo 25
major, Crotophaga 22
— , Taraba 23, 49
— , Tinamus 21
Malacoptila rufa 22
Margarops fuscatus 17, 18
marginatus, Microcerculus 24
— , Pachyramphus 24
marina, Pelagodroma 11
maxillosus, Saltator 171–174
maxima, Sterna 18
maximus, Saltator 24
mayeri, Astrapia 163
media, Gallinago 199
megarhynchos, Luscinia 195, 211
Megarhynchus pitangua 24, 49
melambrotus, Cathartes 21
melanaria, Cercomacra 98
melancholicus, Tyrannus 25, 49

Melanerpes rubricapillus 49
— striatus 18
— superciliaris 17, 19
melanochloros, Colaptes 98
Melanodryas cucullata 138
— vittata 157
melanogaster, Conopophaga 21, 23
melanoleuca, Atticora 25
— , Tringa 104
melanoleucos, Campephilus 25
melanoleucus, Geranoaetus 104
melanopezus, Automolus 37
melanosticta, Rhegmatorhina 37
melanotos, Calidris 49, 194
melanurus, Ramphocaenus 24
— , Trogon 25
Meliphaga cardinalis 155
— fusca 157
mellisugus, Chlorostilbon 49
meloryphus, Euscarthmus 50
menetriesii, Myrmotherula 23
menstruus, Pionus 22
mentalis, Sphenoaecus 201
Merops nubicus 200
merula, Dendrocincla 23
Mesembrinibis cayennensis 25
mexicana, Tangara 24
mexicanus, Gymnomystax 50
— , Himantopus 49
— , Sclerurus 23
Microcerculus ustulatus 168
— marginatus 24
Microeca fascinans 156
— leucophaea 157
— macroptera 156–158
Microligea palustris 18
Micropalama himantopus 49
Milvus sp. 64
Mimus gilvus 50
— gundlachii 14, 17
— polyglottos 17, 18
minimus, Catharus 169
minor, Coccyzus 18
— , Pachyramphus 24
— , Snethlagea 24
minutilla, Calidris 49
minutus, Anous 218
— , Xenops 23
Mirafra degodiensis 90–93
— gilletti 91–93
— javanica 183
Mitu mitu 25
modesta, Asthenes 147, 150
modestus, Sublegatus 50
mollis, Pterodroma 88
Molothrus bonariensis 25, 50
momota, Momotus 22, 97
Momotus momota 22, 97
Monasa flavirostris 37
— morphoeus 22
— nigrifrons 22
monogrammicus, Kaupifalco 198
montana, Geotrygon 22
morphoeus, Monasa 22
Morus 11
moschata, Cairina 25
mosquera, Eriocnemis 142
Motacilla flava 210
motmot, Ortalis 21
murina, Phaeomyias 50
Muscicapa striata 211
Muscisaxicola juninensis 105
— maculirostris 105
Mycteria americana 25
Myiarchus ferox 24, 49
— stolidus 18
— tuberculifer 169
— tyrannulus 49
Myiobius sp. 25
Myionectes oleagneus 143–145
Myiophobus fasciatus 49
Myiornis ecaudatus 24
Myiotheretes 26, 29
Myiozetetes 49
Myiozetetes cayanensis 49
— similis 25, 49
myotherinus, Myrmoborus 23
Myrmeciza longipes 49
Myrmecocichla aethiops 200
Myrmoborus leucophrys 23
— myotherinus 23
Myrmothera simplex 168
Myrmotherula axillaris 23
— brachyura 23
— hauxwelli 23
— leucophthalma 23
— longipennis 23
— menetresii 23
— ornata 23
— surinamensis 23
Myzomela 153–154
Myzomela boiei 153–154
— caledonica 153
— cardinalis 156
— chloroptera 154
— dibapha 153–155
— sanguinolenta 153–155
— wakoloensis 154

naevia, Hylophylax 23
— , Locustella 195–196
— , Sclateria 23
Nasica longirostris 23
natalensis, Caprimulgus 71, 72, 74
— , Cisticola 34
Nectarinia alinae 13–14
— bannermani 13–14
— hunteri 91
— kilimensis 202
— oritis 13–14
— reichenowi 202
— rufipennis 54
— verticalis 13–14
neglectus, Phylloscopus 45

Nemosia pileata 101
Neochmia temporalis 157
Neoctantes niger 37
Neomorphus squamiger 21–22
niger, Neoctantes 37
— , Quiscalus 18
— , Rynchops 25
nigrescens, Caprimulgus 22
— , Cercomacra 23
nigricollis, Anthracothorax 25
nigrifrons, Monasa 22
nigriscapularis, Caprimulgus 71, 74
nigrogularis, Icterus 50
nigromaculata, Phlegopsis 23
Nilaus afer 91
nisoria, Sylvia 201
Noctua capensis 170
Notharchus tectus 22
Notiochelidon cyanoleuca 50, 106
novaeseelandiae, Anthus 181–183, 223–224
nubicus, Merops 200
nuchalis, Campylorhynchus 50
nudigenis, Turdus 50
Numenius phaeopus 199
Nyctanassa violacea 124
Nyctibius griseus 25
Nyctidromus albicollis 22, 97
Nyctiphrynus ocellatus 22
Nyctiprogne leucopyga 22

obsoletum, Camptostoma 24, 50
obsoletus, Xiphorhynchus 23
occipitalis, Podiceps 103
Oceanodroma castro 218
ocellatus, Nyctiphrynus 22
ochrocephala, Amazona 22, 175
Odontophorus gujanensis 21
Oenanthe oenanthe 91, 211
oleaginea, Pipromorpha 24, 143–145
oleagneus, Myionectes 143–145
— , Pipromorpha 143–145
olivacea, Tiaris 18
olivaceus, Phalacrocorax 21
— , Rhynchocyclus 24
olivater, Turdus 167
Onychorhynchus coronatus 24
Oporornis agilis 50
oratrix, Amazona 175
orenocensis, Knipolegus 24
— , Saltator 50
Oreostruthus fuliginosus Plates 3 & 4, 35–36
oritis, Nectarinia 13–14
ornata, Myrmotherula 23
ornatus, Cephalopterus 24
Ortalis motmot 21
Oryzoborus angolensis 24
Otus choliba 22
— watsonii 22

Pachyramphus marginatus 24
— minor 24
— validus 99
palliatus, Haematopus 17
pallida, Hippolais 195, 211
palmarum, Corvus 18
— Phoenicophilus 18
— Thraupis 24
paludicola, Acrocephalus 195–196
palustris, Microligea 18
Pandion haliaetus 16, 17, 25
Panyptila cayannensis 25
papa, Sarcoramphus 25
pardalotus, Xiphorhynchus 168–169
parkesi, Saltator aurantiirostris *subsp. nov.* 172–174
Paroaria gularis 24, 50
parva, Ficedula 6–7
parvirostris, Elaenia 50
Passer hispaniolensis 8
passerina, Columbina 18, 22
Passerina cyanoides 24
passerinus, Forpus 49
Patagona gigas 79–80
patagonica, Asthenes 147–148, 152
pectoralis, Caprimulgus 71, 73, 74
Pelagodroma marina 11
pelzelni, Granatellus 24
Penelope pileata 21
pennatus, Hieraaetus 206
Percnostola leucostigma 23
perlata, Pyrrhura 21–22
personatus, Atlapetes 167
perspicillata, Pulsatrix 25
petechia, Dendroica 15, 17, 50
Petroica phoenicea 157
— rosea 157
Phacellodomus rufifrons 49
Phaeomyias murina 50
phaeopus, Numenius 199
Phaeothlypis rivularis 24
Phaethon rubricauda 107
Phaethornis augusti 49
— bourcieri 49
— griseogularis 168
— ruber 22
— superciliosus 22, 168–169
Phaetusa simplex 22
Phalacrocorax olivaceus 21
Philydor erythrocercus 23
— pyrrhodes 23
Phlegopsis nigromaculata 23
phoenicea, Petroica 157
phoenicius, Tachyphonus 169
Phoenicophilus palmarum 18
Phoenicoparrus andinus 94
Phoenicurus phoenicurus 195
Phyllomyias reiseri 184–187
— urchi 184–187
— virescens 184–187
Phylloscopus 43, 160
Phylloscopus bonelli 195–196
— budongoensis 159–160
— cantator 45

Phylloscopus chloronotus 38–42, 43–47
— collybita 3, 195–196
— fuligiventer 45
— inornatus 44
— kansuensis 38
— maculipennis 45
— neglectus 45
— proregulus 38–40, 42, 46
— reguloides 45
— ruficapilla 160
— sibilatrix 195
— simlaensis 38–39, 41
— subviridis 45
— trochilus 195, 211
— umbrovirens 160
Piaya cayana 22
pica, Fluvicola 49
Picoides villosus 17
picta, Pyrrhura 22
Piculus chrysochloros 25
— flavigula 22
Picumnus aurifrons 22
— squamulatus 49
picumnus, Dendrocolaptes 23
picus, Xiphorhynchus 23, 49
pilaris, Atalotriccus 50
pileata, Nemosia 101
— , Penelope 21
pileatus, Coryphospingus 50
— , Pilherodius 25
Pilherodius pileatus 25
Pionus menstruus 22
Pipra aureola 140–141
— erythrocephala 140–141
— fasciicauda 24
— rubrocapilla 24
Pipromorpha macconnelli 24
— oleaginea 24, 143–145
— oleagineus 143–145
Piranga rubra 169
pitangua, Megarhynchus 24, 49
Pitangus lictor 25
— sulphuratus 25, 49
Pitylus grossus 24
plancus, Polyborus 25
Platalea ajaja 104
— leucorodia 208
platyrhynchos, Platyrinchus 24
Platyrinchus platyrhynchos 24
platyura, Schoenicola 201
Ploceus 53, 57, 58
Ploceus burnieri *sp. nov.* Plate 1, 51–58
Ploceus castanops 56, 57, 58
— galbula 57
— heuglini 56
— intermedius 56
— katangae 56
— subaureus 57–58
— taeniopterus 56–57
— uluensis 56
— velatus 56–57
plumbea, Columba 22
— , Ictinia 25
— , Polioptila 24, 50
Podiceps occipitalis 103
poecilonota, Hylophylax 23
poecilurus, Knipolegus 168
poliocephalus, Caprimulgus 71, 75
— , Tolmomyias 24
poliolopha, Prionops 201
poliopleura, Emberiza 91
Polioptila caerulea 17
— plumbea 24, 50
Polioxolmis rufipennis 26–31
Polioxolmis rufipennis bolivianus *subsp. nov.* 30
Polyborus plancus 25
polyglotta, Hippolais 195
polyglottos, Mimus 17–18
Polyplancta aurescens 22
Polystictus superciliaris 152
Polytmus guainumbi 49
pomarina, Aquila 198
pratincola, Glareola 209
Prinia 44
Prinia criniger 43, 45
Prionops poliolopha 201
pristoptera, Psalidoprocne 200
procurvoides, Campylorhamphus 23
Progne chalybea 25, 50
promeropirhynchus, Xiphocolaptes 23
proregulus, Phylloscopus 38–40, 42, 46
Psalidoprocne pristoptera 200
Psarocolius decumanus 24, 101
Psophia viridis 21
Pteridophora alberti Plates 5, 6, 7, 8, 160–163
Pterocles decoratus 199
Pterodroma brevirostris 86–90
— brevirostris brevirostris 88
— — kidderi 89
— kidderi 88–89
— mollis 88
Pteroglossus aracari 22
— bitorquatus 22
Puffinus assimilis 11, 66–70
— heinrothi 66
— lherminieri 16–17, 66–70
— puffinus 70
Pulsatrix perspicillata 25
pumilus, Coccyzus 49
punctata, Bowdleria 10
punctigula, Chrysoptilus 49
punctulata, Hylophylax 23
punensis, Asthenes 148
pusilla, Calidris 49
Pycnonotus barbatus 91
Pygiptila stellaris 23
Pyriglena leuconota 23, 99
pyrrhodes, Philydor 23
pyrrholeuca, Asthenes 147, 149, 151
Pyrrhura perlata 21–22
— picta 22

Quiscalus lugubris 50
— niger 10

Rallus longirostris 17
Ramphastos dicolorus 97
— tucanus 22
— vitellinus 22
Ramphocaenus melanurus 24
Ramphocelus carbo 24, 50, 101
Ramphotrigon fuscicauda 37
Recurvirostra avosetta 194
reguloides, Phylloscopus 45
reichenowi, Nectarinia 202
Reinarda squamata 49
reiseri, Phyllomyias 184–187
Rhegmatorhina melanosticta 37
Rhipidura 158
Rhodinocichla rosea 50
Rhynchocyclus olivaceus 24
rhynchotis, Anas 157
Rhytipterna simplex 24
ricordii, Chlorostilbon 17
ridibundus, Larus 209
Riparia riparia 50
rivularis, Phaeothlypis 24
rixosus, Machetornis 49
robusta, Cisticola 200
rolland, Rollandia 103
Rollandia rolland 103
rosea, Petroica 157
— , Rhodinocichla 50
rostrata, Geothlypis 17
ruber, Eudocimus 123–125
— , Phaeothornis 22
rubetra, Saxicola 195
rubica, Habia 24
rubicundus, Grus 183
rubra, Piranga 169
rubricapillus, Melanerpes 49
rubricauda, Phaethon 107
rubricollis, Campephilus 23
rubrigastra, Tachuris 105
rubrocapilla, Pipra 24
rufa, Malacoptila 22
rufaxilla, Leptotila 22
ruficapillus, Phylloscopus 160
ruficauda, Galbula 22, 49
ruficeps, Elaenia 160
ruficollis, Corvus 8
— , Hypnelus 49
rufifrons, Phacellodomus 49
rufigena, Caprimulgus 76
rufigularis, Falco 21
rufimarginatus, Herpsilochmus 23
rufipennis bolivianus, Polioxolmis *subsp. nov.* 30
rufipennis, Geositta 105
— , Nectarinia 54
— , Polioxolmis 26–31
rufipileatus, Automolus 23
rufus, Tachyphonus 24, 50
rustica, Hirundo 50
ruticilla, Setophaga 18, 169
rutilans, Synallaxis 23
— , Xenops 98
rutilus, Thryothorus 50
ruwenzorii, Caprimulgus 71, 75
Rynchops niger 25

Sakesphorus luctuosus 23
Saltator albicollus 50
— aurantiirostris 171–174
Saltator aurantiirostris parkesi *subsp. nov.* 172
Saltator coerulescens 50
— maxillosus 171–174
— maximus 24
— orenocensis 50
sandvicensis, Sterna 210
sanguinolenta, Certhia 154–156
— , Myzomela 153–155
Sarcoramphus papa 25
Sasia africana 62–63
Saxicola caprata 183
— rubetra 195
Scardafella squammata 49
schistacea, Leucopternis 21
schistaceus, Thamnophilus 23
schlegeli, Arremon 50
Schoenicola platyura 201
schoenobaenus, Acrocephalus 195
scirpaceus, Acrocephalus 195
sclateri, Asthenes 147, 148
Sclateria naevia 23
Sclerurus caudacutus 23
— mexicanus 23
scotops, Eremomela 201
scutatus, Augastes 152
seebohmi, Amphilais 9, 10
— , Dromaeocercus 9
semifasciata, Tityra 25
semitorquatus, Lurocalis 22
senator, Lanius 195
Serinus ankoberensis 82
— atrogularis 81
— canaria 41
— collaris 82
— dimidiata 82
— donaldsoni 202
— flavigula 81–83
— xantholaema 82
Serpophaga subcristata 105
serrana, Formicivora 187–193
serrana interposita, Formicivora *subsp. nov.* 189
serrana littoralis, Formicivora *subsp. nov.* 191
serrator, Sula 93
serrirostris, Colibri 104
Setophaga ruticilla 18, 169
severa, Ara 22
sibilatrix, Phylloscopus 195
Sicalis flaveola 50
— lutea 106

similis, Anthus 224
— , Myiozetetes 25, 49
simlaensis, Phylloscopus 38–39, 41
Simoxenops ucayalae 21, 23
simplex, Camaroptera 200
— , Myrmothera 168
— , Phaetusa 22
— , Rhytipterna 24
Sitta ledanti 53
Sittasomus griseicapillus 23
Snethlagea minor 24
solitaria, Tringa 48
souleyetii, Lepidocolaptes 49
spadiceus, Attila 24
sparverius, Falco 16, 18
Sphenoaecus mentalis 201
spilogaster, Hieraaetus 198
Spilornis cheela 127–128
Spindalis zena 17
spirurus, Glyphorhynchus 23
spixii, Xiphorhynchus 23
Sporophila bouvronides 50
— intermedia 50
— lineola 50
— nigricollis 50
Spreo albicapilla 91
squamata, Reinarda 49
squamiger, Neomorphus 21, 22
squammata, Scardafella 49
squamulatus, Picumnus 49
steinbachi, Asthenes 147–148
stellaris, Botaurus 194
— , Pygiptila 23
Stephanoaetus coronatus 199
Sterna albifrons 210
— fuscata 213
— maxima 18
— sandvicensis 210
— superciliaris 25
stictolaema, Deconychura 23, 37
stolidus, Anous 218
— , Myiarchus 18
Streptopelia turtur 196, 210
striata, Muscicapa 211
striatus, Butorides 25
— , Melanerpes 18
subaureus, Ploceus 57–58
subbuteo, Falco 199
subcristata, Serpophaga 105
subflava, Inezia 24, 50
Sublegatus modestus 50
subruficollis, Tryngites 49
subulatus, Todus 18
subvinacea, Columba 49
subviridis, Phylloscopus 45
Sula 11, 216–218
Sula dactylatra 10–12, 213–218
— leucogaster 11–12, 213, 217–220
— serrator 93
— sula 12, 207, 213–221
sulcirostris, Crotophaga 49
sulphuratus, Pitangus 25, 49
sulphurescens, Tolmomyias 24
superciliaris, Melanerpes 17, 19
— , Polystictus 152
— , Sterna 25
superciliosus, Accipiter 21
— , Phaethornis 22, 168–169
— , Vanellus 199
surinamensis, Myrmotherula 23
svecica, Luscinia 195–197
Sylvia borin 195
— cantillans 211
— communis 195
— leucophaea 156–158
— nisoria 201
Synallaxis albescens 49
— cherriei 21, 23
— gujanensis 23, 98
— rutilans 23

Tachuris rubigastra 105
Tachybaptus dominicus 17
Tachycineta albiventer 25, 50, 100
— cyaneoviridis 17
— leucopyga 100
Tachyphonus cristatus 24
— luctuosus 25
— phoenicius 169
— rufus 24, 50
taciturnus, Arremon 24
taeniopterus, Ploceus 56–57
Taeniotriccus andrei 21, 24
talpacoti, Columbina 49
Tangara cayana 50
— mexicana 24
Taraba major 23, 49
tectus, Notharchus 22
temporalis, Neochmia 157
tenebrosa, Chelidoptera 22
Terenotriccus erythrurus 24
Tersina viridis 50
Thalurania furcata 22
Thamnomanes caesius 23
Thamnophilus amazonicus 23
— doliatus 49
— schistaceus 23
Thraupis episcopus 25
— glaucocolpa 50
— palmarum 24
Threnetes leucurus 22
Thryothorus coraya 24
— genibarbis 50
— guarayanus 101
— leucotis 24
— rutilus 50
thula, Egretta 25, 124
Tiaris bicolor 17
— olivacea 18
tibicen, Gymnorhina 183
Tinamus guttatus 25
— major 21
Tityra inquisitor 25
— semifasciata 25

Todirostrum cinereum 50, 99
— maculatum 24
Todus subulatus 18
Tolmomyias flaviventris 24, 49
— poliocephalus 24
— sulphurescens 24
torquata, Ceryle 25
— , Corythopis 24
torquilla, Jynx 196
Tribura 10
trichas, Geothlypis 17
Tringa erythropus 209
— flavipes 48
— glareola 195
— melanoleuca 104
— solitaria 48
tristigma, Caprimulgus 75
trivialis, Anthus 210
trochilirostris, Campylorhamphus 49
trochilus, Phylloscopus 195, 211
Troglodytes aedon 50
Trogon melanurus 25
— violaceus 25
— viridis 22
Tryngites subruficollis 49
tuberculifer, Myiarchus 169
tucanus, Ramphastos 22
turdinus, Campylorhynchus 24, 100
Turdus albicollis 24
— fumigatus 24
— ignobilis 168
— leucomelas 50
— nudigenis 50
— olivater 167
— volitans 157
turtur, Streptopelia 196, 210
Tyranniscus gracilipes 24
tyrannulus, Myiarchus 49
Tyrannus dominicensis 18
— melancholicus 25, 49
Tyto alba 17–18
— capensis 181–182

ucayalae, Simoxenops 21, 23
uluensis, Ploceus 56
umbrovirens, Phylloscopus 160
Upucerthia validirostris 105
urbica, Delichon 196
urichi, Phyllomyias 184–187
Uropsalis 204–205
Uropsalis lyra 204
urubambensis, Asthenes 148
urubitinga, Buteogallus 25
ustulatus, Microcerculus 168

validirostris, Upucerthia 105
validus, Pachyramphus 99
Vanellus cayanus 22
— chilensis 48
— superciliosus 199
— vanellus 207
varia, Grallaria 23
variegatus, Crypturellus 21
velatus, Ploceus 56–57
Veniliornis affinis 22
— kirkii 49
verreauxi, Leptotila 22, 49
Verreauxia africana 62
versicolurus, Brotogeris 97
verticalis, Nectarinia 13–14
vespertinus, Falco 7–8
vexillarius, Macrodipteryx 76
villosus, Picoides 17
violacea, Euphonia 24
— , Loxigilla 17
— , Nyctanassa 124
violaceus, Trogon 25
Vireo crassirostris 17
virescens, Phyllomyias 184–187
— , Xanthomyias 184
virgata, Ciccaba 22
viridigaster, Amazilia 168
viridis, Psophia 21
— , Tersina 50
— , Trogon 22
vitellinus, Ramphastos 22
vittata, Melanodryas 157
vociferans, Lipaugus 24
Volatinia jacarina 25, 50
volitans, Turdus 157
vulturina, Gypopsitta 21–22

wakoloensis, Myzomela 154
watsonii, Otus 22
wyatti, Asthenes 148–151

xanthogonys, Heliodoxa 49
xantholaema, Serinus 82
Xanthomyias virescens 184
xanthopterygius, Forpus 96
Xenopipo atronitens 169
Xenops minutus 23
— rutilans 98
Xenopsaris albinucha 49
Xiphocolaptes promeropirhynchus 23
Xiphorhynchus elegans 105
— eytoni 23
— guttatus 49
— obsoletus 23
— pardalotus 168–169
— picus 23, 49
— spixii 23
Xolmis 26

yetapa, Gubernetes 99
yuracares, Gymnostinops 24

zena, Spindalis 17
Zenaida auriculata 49
— aurita 17–18
Zonaeginthus 36

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